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OBSERVATIONS ON RABIES *

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I assume that we are all, whatever our view-point, familiar with the phenomenon known as a "rabies scare." This is not as a rule associated with any unusual prevalence of rabies in the vicinity, but indicates rather an unusual amount of attention paid by the newspapers at intervals of months or years to a condition which we unfortunately have with us more or less all the time in most of our eastern cities. These periodic outbursts are frequently precipitated by the exposure of some prominent person, the death of a human being with all its harrowing details, or some tragic occurrence on the streets which makes good headline material. For several days or possibly weeks the minutest attention is given to all cases of dog-bite, mad dogs and cats, pound masters' reports, articles by health officials, replies by cranks, and editorial comment. Then suddenly the whole matter is dropped, and so far as the public is aware, rabies has been banished from the city. As a general thing there has been no great increase of rabies during the agitation, and its subsidence is not accompanied with any marked diminution of the disease. These scares, however, serve a useful purpose, and are probably more effective in drawing public attention to the disease than would be a continuous but commonplace recital of statistical matter. One thing which is always emphasized during these flurries is the great diversity of opinion concerning the disease rabies, or hydrophobia, for as is well known there is no person however unassuming and modest in general affairs who can reach maturity without having convictions in medical matters. I count it, therefore, a privilege that I was enabled to approach the study of this disease with as little bias or prejudice as any one. The subject was not touched on during my medical course as far as I can remember, but I had probably read

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with half attention some text-book article on the subject. When I met a dog on the street I patted him on the head without ever noticing whether he was muzzled or not, and never thought of rabies in connection with him. The periodical rabies scares made no more impression on me than did the railway accidents and murders. One day some five years ago, a stray dog wandered into the grounds of the Hygienic Laboratory, and was discovered hidden away in a cask, which lay on its side. When disturbed it seemed weak and could not stand up, and its lower jaw hung down. When offered food and water it would attempt to get some into its mouth but was unable to swallow any. The dog was plainly very sick and somebody suggested that it might be suffering from dumb rabies. The animal was kept in a stall for a day or two when it died after becoming completely paralyzed and much emaciated.

About this time there was much in the medical literature about the discovery by the Italian Negri of certain appearances, since known as Negri bodies, in the brain of animals which had died from rabies. We therefore examined the brain of our dog and found the bodies as described. To make sure, however, we inoculated some rabbits with small amounts of the brain matter. As soon as these rabbits had come out of the ether, they resumed their interrupted meal of cabbage in apparent unconcern. They remained perfectly well so far as anyone could observe for about two weeks. Then one after another they began to be sick. Their general appearance became rather sad and unkempt. One ear would hang down while the other was erect, the eyes had a staring look, the movements of the head and limbs became uncertain and wavering. The next day the rabbits lay on their side, the hind legs motionless, the front ones still scraping a little arc in the sawdust, the head drawn sharply backward. The paralysis advanced to the front legs and finally attacking the respiratory center the animals died. The brains were examined and Negri bodies found as in the dog. We began to be interested in rabies. The annual reports of the Bureau of Animal Industry had shown the prevalence of the disease in Washington for years, and I have only spoken of my introduction to the disease to illustrate how one having more reason to be interested in the subject, from a scientific standpoint at least, than has the general public, could live for some time in a city where rabies was not at all rare without having a realizing sense of the truth concerning its prevalence.

This case might also be used as a text to illustrate the grounds on which Science bases its recognition of rabies as a distinct disease entity. Given, a sick dog with very peculiar symptoms and microscopic appearances in the brain after death which are not found except after death from disease showing the same train of symptoms. Then an infinitesimal portion of the brain of the dog is inoculated into the brain of another animal — any mammal will do. Then a period of some two weeks during which no symptoms are observable — this being an important link in the chain of evidence, since it rules out the possibility of any brain injury, or of the action of a poison generated in the dog as the result of fright, fatigue, starvation, bad water, or other cause to which the symptoms of

madness are ascribed by those persons who are unwilling to admit that there is such a communicable disease as rabies. Then the sickening of the inoculated animals with symptoms similar to those of the dog, their death, and the finding of identical appearances in the brain. Add to this the fact that the same conditions can be reproduced by serial inoculation for endless generations in the laboratory and there is no conclusion possible but that this disease is a communicable one and is due to some agency which has the property of reproducing itself, in other words, is a living organism.

Shortly after this occurrence the director of the laboratory instructed me to make a study of the literature of rabies, and to do such preliminary experimental work as would be necessary for the production of the anti-rabic virus as used in the Pasteur treatment.

In reviewing the literature I fortunately started with present day articles and worked backwards. If I had begun at the other end and done a thorough job, I would probably still be around the period of the Revolutionary War, for the literature early reached enormous proportions.

One thing becomes evident from a study of the writings on rabies, which is that we must either face the problem of rabies in animals and man, or the much more serious problem of widespread imbecility in medical and scientific circles. I chose the easier alternative. The medical profession both in its human and veterinary applications, is committed to a belief in the existence of a disease which it calls rabies, and so is that large class of laboratory workers which, though composed largely of doctors, are primarily students of pure and so to speak unapplied science; and expressions of doubt no longer come from such sources.

How then can we account for the skepticism, or outspoken antagonism which still prevails among certain people who, although not composing a very large proportion of the population, are so insistent in their views and so antagonistic to the use of logical methods in coping with this disease as to constitute an obstacle which has to be reckoned with? I can illustrate one way of accounting for it by reciting a case.

A farmer had several cattle which were bitten by a strangely acting dog. Some three weeks later one of these cows came down with symptoms which a veterinarian said were those of rabies, and died. The farmer faced the loss of his remaining animals, but a neighbor came to his aid. This neighbor could not read or write, but he had convictions, one of which was that this talk of rabies was a myth. He told me later that he didn't "take no stock in it." He bought one bitten cow from the farmer and chuckled over his bargain, and expressed a wish that he could buy all the cows so exposed in the country, at the same price. Thirty-three days later the cow became sick. True to his convictions, the purchaser, taking no stock in rabies, fixed up some cow medicine and drenched the cow. His hands had some ugly fresh wounds on them and the copious saliva was well rubbed in. The next day the cow was busy demolishing the stanchions of the stable, and tearing her flesh with her teeth. Our friend told me that he shot her just in time to save the side of the barn, she "tuk on so." He spent much of the ensuing night in

thought and the next morning took an early train for Washington and the Pasteur treatment. Disbelief in rabies can be set down in this case to illiteracy and ignorance. But how about the books which tell you all about dogs, written as a rule by an enthusiastic fancier but minus the veterinary degree, which state in the chapter on dog diseases that in an experience of thirty-five years the author has never seen a case of rabies? And how about the societies for the protection and shelter of dumb animals which publish accounts of thousands of dogs cared for with no cases of rabies among them? There are several possible explanations of the conflict between these views and the scientific view. Possibly some of these people live in one of those localities now rare in the eastern part of the United States where rabies has really been unknown since the memory of man. Some of them prefer another name for this disease to the one now current in scientific circles, others are positively biased, and read and think of but one side of the question, being impervious to argument or demonstration. I have treated a number of this class. They always explain that they take the treatment to allay the fears of solicitous but misguided friends. But not to go too far into a study which is really one of psychology, let us simply remember that one positive observation competently made offsets a multitude of negative ones. If you get up in the middle of the night to see Halley's comet and see it, you do not doubt your senses if you can find a thousand people who lay abed and did not see it. The equipment which the critics bring to the controversy is found on analysis to consist largely of sentiment. Sentiment is a good thing, an indispensable factor in civilized life, but it should be guided by reason and experience. Sentiment is also the stimulus which prompts those interested in the eradication of rabies, but reason and experience have shown them that nothing is to be gained by ignoring facts.

Scientific investigation of rabies began centuries ago, by the crude methods then available, but the experimental methods which have made an intimate study possible were introduced by Pasteur in the 1880's. I conceive it to be outside of the scope of this talk to review the results of this research in any detail. Suffice it to say that all the factors which have been so diligently worked out in the past few years with regard to infantile paralysis had previously been established with regard to rabies, which is indeed from the standpoint of the laboratory worker one of the most definite and workable of diseases.

There are several points in connection with recent work in rabies, which may merit passing attention. First, the Negri bodies. I know of no discovery made in the laboratory which has received such prompt and universal confirmation, that is, as far as their being distinctive of rabies is concerned. Their real significance, whether as the cause or the result of the disease, has, to my mind, not been determined. Eminent protozoologists name and classify them among the protozoa, in which case they can hardly be anything but the long-sought germs of hydrophobia. Equally eminent pathologists see in them only the products of reaction between the nerve cells and the undiscovered microorganisms. But all unite in finding them specific for rabies. Their practical application has

been in the early determination of the presence or absence of rabies in an animal which has been suspected of having this disease. Their value in this way is about equivalent to the bacteriologic examination of throats of diphtheria suspects, i. e., given a suitable specimen, between 95 and 100 per cent. It must be remembered, however, that their absence does not preclude the possibility of rabies and that the symptoms exhibited by the biting animal must always be considered.

The Negri bodies have been of great help to the laboratory worker in shortening his labors, and in saving much material in the way of experimental animals.

Then there is the question of antirabic serum, produced by the prolonged inoculation of animals (horses or sheep) with a modified rabies virus. This serum has strong powers of destroying rabies virus in a test-tube, but experimentally it has been disappointing both as a prophylactic and curative agent. It is employed at several institutions to modify the fixed virus of rabies before this is injected for immunizing purposes; the claim being made that in this way an earlier and more pronounced immunity is conferred. It has not been used alone for immunizing purposes. Its use in a dried condition as an application to rabies-infected wounds has been suggested. Finally the antirabic property of the serum of persons who have received preventive inoculations may be of use in estimating the degree of immunity conferred, although we must not be hasty in assuming this. The agglutination titer in typhoid fever cannot be taken as an index of immunity.

As a matter of fact there are only two things of importance for mankind to know about any disease; first, that it really exists, and second, how to get rid of it. All else is matter for a restricted number of persons called pathologists to busy themselves with. But without the pathologist we cannot learn these two simple things. They have answered these questions long ago with regard to the disease rabies, and it is plainly up to the public to apply the knowledge at hand. Rabies exists more or less throughout all the eastern part of the United States. The way to get rid of it is to prevent dogs from biting; for the misfortune of being the perpetuator of rabies is laid on our good friend, the dog. Does this mean that we have got to put away our good friend, banish him from the society of mankind? No. I wish to say to the dog-lover particularly, that if the measures universally advocated by public health officials for the eradication of rabies were really enforced, the result would be more to the advantage of the dog than of any other animal, including man. The result would be an improvement in the condition of dogs individually and of the breed in general. It is also to be emphasized that these measures can be dispensed with once the disease is eradicated. Dogs are not now muzzled in England or in Berlin, for instance, because rabies having been banished, there is no longer need for it. That the dog is responsible for the perpetuation of rabies is shown by the following data: Measures directed against the disease in dogs alone are sufficient to eradicate the disease completely, as has been demonstrated in England. The dog, because of his social habits, his tendency to wander and to bite, is

especially adapted more than any other domestic to transmit a disease which is carried in the saliva and must be introduced through wounds. Over 80 per cent. of all animals reported as dying of rabies are dogs, and over 90 per cent. of all persons exposed to rabies by bites are bitten by dogs. What then shall we do with our dogs? Simply submit them to a degree of control which would not be regarded by anyone as either cruel or unreasonable in the case of any other animal. First we have an immense population of wandering, homeless, ownerless, starving dogs. They are not amenable to control. If they excite our pity they should rather excite our self-condemnation and remorse that we ever allowed them to exist. The only practical thing to do with this class is to put them to a painless death, thereby saving them much suffering, and removing a constant menace to other animals and to man. There are societies which maintain refuges for such animals. If they can square it with their consciences to expend the necessary money in this way when there are thousands of little children in as bad or worse case than the dogs, very well, but they must give absolute assurance that their charges are so kept as to be no menace.

Now for the dogs which are so fortunate as to have homes and masters. As everyone knows they are ordinarily allowed such liberty that if there is a rabid animal in the vicinity, ample opportunity for infection is offered. Even the man who tells you how carefully he keeps his valuable dog has to go around the corner once in a while and pull his dog out of a fight.

The object of antirabies operations is not to do away with dogs but to keep them from biting, and by way of corollary, from being bitten. Since this cannot be carried out in the case of ownerless dogs, there is no alternative but to destroy them, but in the case of owned dogs we may confine them to the premises of the owner or make sure that they are prevented from biting when at large by wearing an efficient muzzle. I might mention in passing the scheme of a German sanitarian who proposed to file down the teeth of all dogs so that they could not inflict a wound. This gentleman was in the same class with the philosopher who tried to extract sunbeams from cucumbers. Many dog-owners, however, resent any such infringement of the liberties of their animals such as implied by restraint on their own premises or muzzling when at large. These people display a regrettable lack of intelligent appreciation of their own interests, as well as a culpable indifference to the rights of others.

Does the prevalence of rabies in this country warrant our going to all this trouble in eradicating it? I believe that it does even from the standpoint of the agriculturist, and leaving the loss of human life out of consideration, for the loss of valuable live-stock in some sections reaches serious proportions, and unfortunately the disease appears to be on the increase wherever it has gained a foot-hold. The loss of valuable dogs also is no small feature when we consider that at least two large hunt clubs have been obliged to destroy their entire packs on account of rabies infection. We are unable in the present state of vital statistics to ascertain with exactness just how many cases of rabies do occur throughout

the country, but sufficient cases come to official report to convince us that the disease is widespread. Dr. Kerr and myself made an attempt to ascertain how much rabies there had been during the year 1908. We wrote to health officers all over the United States and obtained evidence of the prevalence of rabies in the lower animals in thirty-nine states or territories, and distributed throughout 534 separate localities. We also learned of 111 deaths during that year in human beings in thirty states or territories. Anyone conversant with this method of collecting data will recognize that these figures must necessarily be below the actual truth. Combining our findings with previous and subsequent reports, we find that there are only eight states or territories in which there is no record of the prevalence of rabies, and that these are mostly in the sparsely inhabited Rocky Mountain and Pacific slope regions.

At least 111 deaths in man; how many more occurred but were unrecognized or failed to be reported we can only conjecture. This is a small number when we consider the ravages of tuberculosis, typhoid fever, pneumonia and many other diseases, but those were not ordinary deaths; the suffering in the majority of cases of hydrophobia is something more than ordinary. When we consider that about 40 per cent. of these deaths were in children under 10 years old, and that they were preventable by means which we know but do not apply, the continued existence of rabies becomes a reproach to our intelligence and efficiency.

In England and Scandinavia and certain isolated European cities rabies once prevalent has been eliminated. The methods employed were the same which health officers in this country advocate. Why cannot we achieve the same happy result and rid ourselves once and for all of this disease and the stigma of inefficiency as well as the losses which it entails?

For geographical reasons we have a harder problem on our hands, but my own opinion is that peculiarities of our American citizenship have been a great obstacle. We have more people who can read, but not too many who have learned what to read. We have a greater demand for personal liberty, but have not advanced to a proper understanding of civic liberty. When the people of the United States determine to get rid of rabies it will be done, and not before; laws, statutes, ordinances and regulations to the contrary notwithstanding. The most profitable line of effort on the part of the health officials would seem to me therefore to be in the direction of popular education. The average American is not slow to put a measure into execution when he is once convinced that it is to his own interest.

What then should the public know with reference to rabies in order that they may render that assistance to the health officials without which no good of a complete or lasting character can be accomplished? They should recognize the following facts:

1. That rabies exists and is not an uncommon disease in animals and that it is perpetuated by dogs.

2. That it means death to the dog, and to a certain percentage of persons who are exposed, as well as much anxiety, expense and discomfort to those who are so fortunate as to escape the disease.

3. That it lies in their hands to eradicate the disease and that the way to do this is to keep dogs from biting, which necessitates the removal of the ownerless dog and the proper control of owned dogs; that the proper control of dogs does not mean temporary confinement to the premises only when the dog-catcher is reported in the neighborhood, and that an efficient muzzle is not a limp piece of leather depending from the dog's collar.

4. That the dog is in almost all cases not at all a necessity but a luxury, and that the license fee which they pay in no sense gives them the right to allow their animals to run at liberty when this means a menace to other animals and to people. I do believe however that the payment of such a fee or tax does entitle the owner to some protection for his animal, that the license can be regarded, in other words, as in a sense a guarantee that dogs properly muzzled should be able to run at large for their necessary exercise, in safety from attack by dogs not so equipped.

Now since it is probable that we shall not succeed in eradicating rabies for some few weeks, months or possibly years, it is well to know what is the next best thing to do about it. Those who have to do with dogs should bear in mind if it becomes sick that it may possibly be coming down with rabies, especially if opportunity for infection has occurred. A change in disposition, unusual affection and desire to be petted or the opposite, surliness and a desire to be alone, and extreme restlessness should excite suspicion, and the animal should be confined in a safe place for a few days of observation. A very common source of infection is by exposure to saliva while attempting to remove a supposed bone from the throat of a dog which is in reality suffering from paralytic rabies. Better let the veterinarian remove the bones; it is dangerous, but his business. When a person has been bitten by a dog there is a tendency on the part of many people to kill the animal immediately. This is bad practice for several reasons: The dog may have had nothing the matter with it, or may have been suffering from some other disease than rabies, as a few days of observation would have shown. Or it may have been in the early stages of rabies when the characteristic Negri bodies are sometimes insufficiently developed to make an early diagnosis possible. Of course when the dog is furious and manifestly dangerous to approach, it must be killed, but even then preferably after a veterinarian has had an opportunity to see it. When a dog has died or been killed for suspected rabies the head of the animal should be sent as expeditiously as possible to the laboratory for diagnosis, and in the warm months it should be packed in ice.

Wounds received from any animal in which rabies is suspected should be cauterized as soon as possible, preferably with nitric acid, and a physician consulted as to the advisability of taking the Pasteur treatment. This treatment is the *makeshift* on which we are obliged to fall back in avoiding this truly terrible disease. I call it a makeshift because it is an attempt (usually successful to be sure) to ward off the evil effects of an infection which should never have occurred. The evidence of the efficacy of this treatment has heretofore been statistical and by inference from animal experiments. We can now add to this the fact that the blood serum of persons and animals so immunized contains specific anti-

bodies, which are capable of destroying the virus in a test-tube. But this treatment is expensive, time-consuming, somewhat painful, and not absolutely certain, since a small percentage (about 0.5 per cent.) of treated persons die of hydrophobia despite treatment.

In concluding my remarks, I wish to advert to the wonderful moral effect which a successful antirabies campaign in the city of Chicago would have on the country at large, and to enlist the sympathies of physicians and laymen alike in behalf of the efforts now made and to be made in this direction by your health officials. If you are in doubt, I believe that your Commissioner could arrange to show you some convincing concrete evidence at his laboratories. Once convinced of the existence of rabies you have only to weigh in one scale the loss of animal and human life, and all the suffering and monetary loss, and in the other scale — no, not the dog, but the dog's greatest enemy, rabies.

DISCUSSION

President Patton: This inspiring paper, which I am sure is of especial interest to all of us at this time, because of the somewhat unusual prevalence of rabies in this part of the country, is now open for discussion. Dr. George B. Young, of the Board of Health will lead the discussion.

Dr. George B. Young: I have very little to say in the way of discussion of the paper. I thought perhaps it might be well to make some explanation of the relation that the Health Department bears at the present time to the rabies situation in Chicago.

I shall preface my remarks by saying that this subject is particularly interesting to me because at the present time I am Health Commissioner of the City of Chicago, and, second, because I have been owned by two or three dogs all of my life (in my family, you will notice, the ownership has always been reversed). As a dog lover, I long ago became interested in the subject of rabies. It was not long until I became convinced of the fact that there was such a disease as rabies and I took the trouble to inform myself of the appearance of the dogs suffering from different types of the disease and in the different stages of each. That is a simple thing to do and I think it would be a good thing if all people interested in dogs would inform themselves, at least in a general way, of the manifestations of the disease. I have frequently taken the trouble to shut my dogs up for a couple of days and watch them closely. Every dog lover owes it to himself, to his dogs and to his home to take such steps until he is able to say, with some pretention to authority, what causes the symptoms that appear in the dog when he acts strangely. It does no harm, in any event, to confine them for a while and may save a great deal of trouble.

As to the work of the Health Department in Chicago: our work is in the nature of making diagnoses for the police department or others who send material from dogs suspected of rabies. Unfortunately it too frequently happens that the marksman (be he policeman or neighbor) who destroys the dog expends his energies, either with club or gun, upon the head of the dog and when we get such specimens it is difficult indeed to prepare proper sections. We make these diagnoses for the Police Department and Dr. Tonney will have something to say about the methods we follow and the results we have obtained during the present season.

Another connection the department has with the matter is supplying a certain number of treatments to people who are unable to supply them for themselves. We have an arrangement with the Public Health and Marine-Hospital Service by which they send us (we wiring for it as needed) the necessary amount of vaccine for a subject suspected of needing the treatment. We only get it for those who are really unable to pay for it—those whose lives would be sacrificed if we did not provide the treatment. It does not necessarily follow that because a person is

bitten by a dog, even if he be rabid he will develop hydrophobia any more than that every person having a wound soiled with material probably containing the bacilli will have tetanus.

There has been considerable misapprehension as to what the Department will do and I would like to explain that. At the Iroquois Memorial Hospital we make an examination of those who present themselves for treatment, getting a record of the case, a history of the animal and a history of the nature of the wound. Then we wire for treatment. While we are waiting for the vaccines we have an investigation made to ascertain whether or not the person applying is entitled to the treatment. It is a curious thing, but we find that people want to save their lives and while they are very much disturbed over the possible loss of their lives, they are about equally solicitous in the care of their pocket books; so we make an investigation. If we find the person is able to pay we then take such steps as we can, by personal visitation and by letter, to urge that individual, or (in case of children) the parents of the patient to go to an institution making the treatment a matter of business and try to impress upon them the very great importance of instituting treatment at once.

The Public Health and Marine-Hospital Service furnishes treatments to State Boards of Health in a number of states and to the large cities. We have not the facilities in our laboratory, nor the room or time to prepare the treatment for ourselves. Some cities can do so. New York does, and so do others that have the facilities, but the Government furnishes it to Chicago.

In regard to the police force: A great interest in this subject has been stirred up among the members of the force. Of course the great difficulty is that many of the force have had no instruction which would enable them to say when a dog is acting strangely that it has rabies. I have seen dogs with epilepsy, especially of the circulatory type where they run around and around in a circle, killed as rabid. It is very possible for a dog who has come a long distance or has been chased by boys and has had no water, to be killed for rabies. It seems to me, therefore, that it would be very desirable to provide means for instructing the members of the police force as to the things to look for in dogs suspected of having rabies.

Of course we cannot give this treatment gratuitously to members of the force. In case a member of the force is bitten, we make the diagnosis, buying from some firm the necessary material for treatment and then give it at the Iroquois Memorial Hospital. A policeman receiving an injury which even presumably endangers his life is quite as much entitled to protection from the city as the fireman who falls into a burning building with a ton of brick on him and has to be dug out at the city's expense. It is just as much in the line of duty for the police to protect from rabid dogs as from criminal men. Therefore, we take the position that it is the business of the Department to provide the necessary medical attention, merely charging for the material.

I merely wished to make this explanation of the work of the Department. There are others here who can give the details of their work.

Dr. A. Lagorio: About twenty-two years ago, when I returned from Europe, I established a Pasteur Institute in this city for the prevention of rabies. At that time I appeared before the medical staff of a local hospital requesting the use of the hospital, they to allow me to plant my laboratory and treat, free of charge, the poor of the city, county and state. The medical staff were willing, and happily consented. But they said that before I could go to work I should have to obtain the permit and consent of a local political body which had the hospital under control.

In the meantime some cranks in the city got hold of the plan and started to fight against the establishment of a Pasteur Institute in the hospital because, they alleged, there was no such thing as rabies, it being a disease of imagination and fright and the establishment of a Pasteur Institute would, therefore, only serve to make people die of fright and overdrawn imagination; that the treatment was useless, there being no such disease as rabies, and that Pasteur himself

had made a discovery that was of no use whatsoever. The editor of a local medical journal at that time coincided with these opinions and had the pleasure of saying that Dr. Lagorio was a fanatic and a fit person to be confined in an insane asylum.

Naturally, in the face of all this, the political body refused absolutely the privilege of establishing the institute in the hospital. Notwithstanding that, the institute was started. People came, the medical profession became educated and awoke to the actual existence of rabies. The poor of this great city, the county and the state all came and received what they needed without question or investigation. Throughout all these years the people of the city, state and county have received whatever treatment has been necessary in each individual case.

Six years ago, in 1905, the legislature at Springfield ruled that the State was under obligations to take care of its indigent poor who were bitten by rabid dogs and passed a law by which every one in the state presenting to the Institute a certificate stating that they had been bitten by a rabid dog and were poor, could come and be treated. This is the law at the present time.

Even now I have eight patients from the city who are paupers, from whom I shall never receive a cent and for whom the city or state will not be asked to pay a cent, but they have been welcome and I treat them gladly.

I feel very grateful for the consideration I have received from the medical profession, those in the Health Department of the state and city and also the Police Department.

There is no question but that rabies does exist. To go over the ground so ably covered by Dr. Stimson's paper would be but a waste of time. Occasionally in the past, before the institute was started, I heard it said here and there that there was no such disease as rabies, that all that was necessary was to apply a madstone to the injury, and many people did go to some old woman who had this stone and waited for the cure, many yet resort to it in the South, but learn of their mistake too late.

During the past year rabies has been very prevalent in the city. Since January I have treated 135 cases of persons bitten in this city by rabid dogs and cats. These were recognized rabid not only by their symptoms, but by the microscopical presence of the Negri bodies in the brain, and by inoculation tests made on animals.

In March a rabid dog appeared on the West Side (I believe it was in Oak Park). It bit several dogs and several persons. Three weeks afterward there was a little epidemic in Austin. Several people and several dogs were bitten. It spread farther west to Maywood and ended in River Forest. Happily the Police Department, advised by their Health Departments, took measures for suppressing the dogs and immunizing the persons bitten so we had no cases of rabies among those. However, I believe one child, whose parents neglected proper precautions, did die in Oak Park.

Another epidemic occurred on the North Shore and is still in progress. Several dogs in Rogers Park were bitten. From there it went to Evanston, from which point we have received several brains for examination and have found signs of rabies. Then it went farther north, into Wilmette and Winnetka and finally to Waukegan.

Now why should this happen? It is not the fault of the Police or Health Departments and it is not the fault of the medical profession. It is the fault of the public itself. I have at present three patients in one family whom I am treating. The members of this family are well educated people and they were all infected by their own rabid dog and bitten in their own home. One would think that ordinary intelligence would teach them to segregate the dog when it is acting strangely. This morning a woman of good education and culture called upon me for treatment, having been infected by her dog suffering from dumb rabies. When I inquired into the circumstances she said that she knew her dog had been bitten about eighteen days before by another dog. I asked "why did you not segregate your dog for a time?" "Well, I did not know the dog was rabid," she said. That is the usual answer to the question, which I

almost always ask. Therefore it shows considerable ignorance of the symptomatology of rabies and it becomes our duty to educate the public about it.

As I see many police officers here and some of the general public possibly a few words of my own experience would not be amiss by way of a little instruction. First of all: when a person is bitten by a dog it should be the duty of those interested, not to kill the dog immediately, as is so often done. It should be captured and quarantined for two weeks. If symptoms are going to develop they will develop within that time. Then you will know. If he is killed instantly we can make a microscopical examination of the brain, but if Negri bodies are not found we can make the inoculation test in guinea pigs or rabbits, but this is a long and dangerous method, because a most valuable time is lost for the safety of the patient.

I call to mind now a case in a neighboring state where seven children were bitten by a dog showing every clinical symptom of rabies, but notwithstanding this, the parents wanted to know definitely from laboratory examination. The Negri bodies were not yet known at that time, so the carcass was sent to the university for examination. In the laboratory they took out the brain, as usual, and inoculated two rabbits. On the nineteenth day after the accident, one of the bitten children developed symptoms of rabies and died. They found out too late that the dog was rabid, and then rushed the other children to the institute here. Three days later I got a telegram from the university saying that the animal was unquestionably rabid, but it came too late to be of any assistance to that child.

As I say, we must look for the Negri bodies in the brain of the animal—but I will not enter into any general discussion of them as the limited time does not permit to-night. I have here, however, four lantern slides that I should like to show.

(Four lantern slides shown, showing Negri bodies in the brain of a rabid dog, of a cow, a child and an adult.)

There are many erroneous ideas regarding rabid dogs. Many believe that because they have received a slight bite which has healed quickly by first intention, that there is no infection and consequently no danger. Do not be misled. Sometimes the simplest possible wound is infected with rabies, yet it shows no local reaction and heals at once.

I call to mind the case on the west side where a man, while attending to his business in his store, a beautiful little dog came in and began running about the place. The man picked him up and the dog began at once to lick his face, and broke a pimple that was on his cheek. After holding and fondling the dog for a while the man put him down, wiped the little wound on his face caused by the broken pimple and thought no more of it. The dog stayed around a little while and finally went off. In four weeks that man developed a typical case of hydrophobia and died. I could cite several cases of hydrophobia in man that came under my notice, following slight abrasions which promptly healed, but time does not permit.

Another fallacious idea is that a rabid dog will not drink water. Now that is not true, for they will often lap up eagerly all they can get, even dirty and foul water. That symptom in hydrophobia in man, is not present at all in animals.

I will cite a case that I saw in the Cook County Hospital some years ago; A man was walking along the lake front; a dog which had been swimming in the water jumped out and upon the man, and made a tooth abrasion on the face. The man paid no attention to the slight wound because he thought the fact that the dog came up out of the water was proof positive that he was safe. In four weeks he was taken to the hospital with hydrophobia. Even there, in spite of the typical symptoms of the disease, the attending physicians doubted somewhat the diagnosis of hydrophobia because the dog had come out of the water. Examinations made after death and inoculations made on rabbits proved the diagnosis beyond a doubt. They all died after fourteen days with typical rabies symptoms.

Then again, people sometimes will argue that the dog having no convulsions, cannot be rabid, and take no precautions. The stage of convulsions and paralysis is only present in the second and third stages of the disease. The first stage is the most dangerous period, because not recognized promptly and many deaths are caused by the fact that the owners of the animal were laboring under the false impression that because he did not have convulsions he could not be rabid; and also by killing the animal too soon, before the true symptoms of rabies have appeared.

It is strange the lengths to which people will go trying to prove that there is no such thing as rabies. They will tell you that it is stomach trouble, and one veterinarian in the city some years ago contended that all dogs presenting the symptoms of rabies were not rabid, but had diphtheria, because the throat symptoms were exactly those of diphtheria. I know a veterinarian in the city who within the past ten years has published innumerable articles denying the existence of rabies, but I have learned that recently he has been converted.

What we must do is to educate the doctors and the people. Educate the doctors to the importance of the subject, and the people out of their false ideas. We must instruct them how to recognize the symptoms.

Owners of dogs are the first to be educated. The mere matter of having a little brass tag on the dog's neck does not prove anything. It merely shows that he has an owner and that that owner has paid two dollars for the privilege of keeping him. The owner should have instructions as to a proper muzzle. The tag will not prevent the dog from biting or being bitten.

The paper read is a wise and timely one and I do hope that the trouble the doctor has taken to prepare it will bear fruit. I should like to see thousands of reprints of this paper distributed so that every household would know how to recognize the symptoms and what to do in case of dog bite.

The prevention of disease is the future of our profession. The doctor in the future is not going to be so much engaged in the curing of sickness as he is in the prevention of it. If we wish to educate the people as to what they may expect of us in the way of prevention, we must go to them with public lectures and free distribution of literature for their information.

When a person is bitten you know what to do. If a diagnosis of rabies in the animal is made the Pasteur treatment is the only thing there is to do. Statistics prove that it is the true preventative. In the institute in Chicago we have reached 5,000 cases treated and the mortality has been about eighteen hundredths of 1 per cent. Last year of the 750 cases treated we do not know a single death, showing conclusively that the Pasteur treatment is the true preventative, but if you want to get rid of the disease, as England and Germany are rid of it, the dogs must be suppressed or taken better care of and the laws enforced.

Dr. F. O. Tonney: I have been very much impressed by what Dr. Stimson has said in regard to a skepticism which prevails as to the existence of the disease, rabies. I have had some little personal experience in this regard which has impressed the subject upon my mind. During the past year a physician called upon me at the Municipal Laboratory and expressed in quite strong language his disbelief as to the existence of rabies, and also as to the presence of any microscopic appearances in the brain which could serve as a basis for diagnosis. Fortunately, I was able to show him slides containing Negri bodies and also to exhibit animals suffering from the disease. This seemed to have some effect, but nevertheless he went away stoutly maintaining that there could be no such thing as rabies in a human being.

I remember also a more recent case, that of a woman,—Gertrude Ross by name—who was recently bitten by a rabid dog. In an interview with a reporter, she is quoted as ridiculing the idea that there could be any danger from such a source. She had been engaged nearly all her life in raising dogs, she said, and she guessed she knew something about them. It is enlightening to learn, however, that she was finally prevailed upon to take the treatment, though only to please her friends, as she stated.

It is hardly necessary to point out in a meeting of this kind that such statements come from persons of no scientific standing. The trouble is that their remarks get into print, and thus tend to create public opinion. In this manner the mischief is done. We cannot pass these occurrences by with the mere assurance that the persons, so expressing themselves, are not authorities on the subject. The general public is all too apt to judge of the competency of an authority by the vigor of his language, and misleading statements, such as appear from time to time, do tend to foster indifference and create a false sense of security.

Of course, it goes without saying that attention should be given to combating the skepticism so produced whenever it is encountered. This may be done in a number of ways. I recall an occurrence in an Eastern city, which I may cite as one method of accomplishing this end. A pound keeper was bitten by a dog and after a time died of rabies. A portion of his brain was secured by the State Veterinary College and inoculated into dogs and rabbits. The injected animals came down in due time with rabies, and further inoculations from the first set of animals produced the same results. The case was given the very widest publicity and did a great deal of good. I may say that the Health Department Laboratory is now conducting tests of a similar nature with a human brain, which was found to contain Negri bodies a few days ago. There of course can be no scientific interest attached to such a set of experiments, as there is no longer any shadow of a doubt that the disease exists and can be transmitted from man to animal and vice versa by inoculation of the brain tissue. The object of the test is not a scientific but a practical one. It is to bring the lesson home forcibly to those who persist in talking in the face of facts.

Within the last three months we can cite three sad examples of the reality of the disease in human beings. The very possibility that such cases can occur is due in part, at least, to the pernicious disbelief fostered by such misleading statements as have just been mentioned. The three cases referred to are: Earl Barnes, 7 years old, who died at the County Hospital on September 25; Edward Furlong, 5 years of age, who died on September 29, and Edward Krueger, 4 years old, who died on October 2.

To illustrate the increased prevalence of rabies among dogs in Chicago during the last year, I will give a few figures from the records of the Health Department Laboratory. I have gone back five years only.

Year	Total Specimens Examined	Number of Positives
1907	10	3
1908	40	10
1909	16	2
1910	105	5
1911	123	77

to date including one human brain.

The number of persons bitten, according to our records, is 161. This number does not include all which came under Dr. Lagorio's care, nor does the list of dogs represent the total number examined. Dr. Lagorio has, no doubt, examined an equal number.

In this connection the human mortality figures are interesting. We have had no large number of human deaths since 1904, when fourteen deaths were reported. In 1907, there were four human deaths from rabies; in 1908, one; in 1909, three; in 1910, none recorded; in 1911, to date, four.

One noteworthy point in connection with these tests is the fact that three have occurred within the past three weeks. All four were among children. We are now reaping a crop of human cases, which are the result of the unusual prevalence of rabies in dogs during the earlier months of the year. Moreover, I venture to predict that there will be a number of additional human cases before the year is out. It is to be expected also that there will be some deaths among adults, as the cases of children naturally appear first because of the shorter incubation period.

For the information of physicians present, who are often called upon to give advice when persons are bitten, it may be well to read from the city ordinance governing the disposition of fierce dogs. (Sections from the ordinance read.) The matter is very simple. Merely call up the nearest police station and an officer will be sent to take charge of the details.

As to the remedies, that matter has already been discussed at some length but certain points are worthy of emphasis. As Dr. Stimson has stated, the most important is to give attention to ownerless dogs. It is estimated by those who are in the best position to know that there are about 10,000 such dogs in Chicago. These are the so-called "strays." It goes without saying that they should be impounded, held for a period of time and then, if uncalled for, disposed of in a painless way. If we are to make any progress in stamping out rabies, we must certainly do this.

The next most important step is the enforcement of the muzzling ordinance as applied to licensed dogs. These number about 63,000 at the present time. I have a suggestion to offer in reference to this feature of the control of rabies. I venture the assertion that not more than 10 per cent. of the owners of dogs which have been licensed in this city, have even purchased muzzles. The license fee in this city is $2.00 and the cost of a muzzle is in the neighborhood of 50c. It would seem that an important step toward the control of the situation could be attained if the city would raise the fee to $2.50 and throw in a muzzle. If nothing else were accomplished, we would at least have an approved style of muzzle. Now we see all sorts of worthless types in use. Some people do not seem to recognize the difference between a muzzle and a piece of strap hanging from the collar. Another advantage would be the certainty that every dog owner in the city possessed a muzzle. This, of course, would not insure its proper use, but at least an essential pre-requisite to stricter enforcement of the muzzling ordinance would have been achieved.

Lastly, we must of course recognize the value of the Pasteur treatment, in fact its absolute necessity under existing conditions. It will continue to be a necessity until such a time as effective measures for stamping out rabies in dogs can be put into operation. For the present, therefore, we must continue to recommend the early administration of the preventive treatment to all those who become exposed to the disease, even though the fact that there *are* such exposures is a constant reminder of our failure to take advantage of the more rational means of prevention so ably presented by other speakers of the evening.

Dr. C. V. Spawr: Dr. Stimson said in his paper that when he began his studies of the subject he was innocent of a great deal of knowledge. I found that I was in the same position when I came to the Iroquois Memorial Hospital last spring. I had read of hydrophobia and had read of rabies in the text books and knew that rabies and hydrophobia were synonymous terms, but that was about as far as my knowledge went. Later I treated cases by the Pasteur treatment, but so far as actual knowledge went I never knew from observation that there was such a thing as hydrophobia until I saw a case last Friday evening at the Cook County Hospital. One was enough! I never wish to see another.

I have been asked to take up this subject from the standpoint of treatment in the hospital. We have had reported to us some sixty-five or seventy cases of dog- or cat-bites—four or five, I believe, were cat-bites—but we have not kept definite track. In all, there were about seventy animal bites. Including those we have now under treatment (seventeen or eighteen) we have given treatment to about forty-five of those who have reported to us.

The method of obtaining the virus has been pretty well explained by Dr. Young. The patient reports for treatment. If found worthy of gratuitous treatment, we wire to Washington for the necessary treatment, having had a definite diagnosis of rabies from the laboratory and from every standpoint. The patient is notified of the arrival of the treatment and reports at once. It is then followed out by the usual method of the Pasteur treatment.

The dried rabies-infected cords are attenuated and their virulence modified by drying from one to eight days. We begin first with the eight day virus. The

first day we give three injections, one of the eight day virus, one of the seven day and one of the six. The second and third days we give two injections, after which it is given but once a day for the remaining days of the treatment (twenty-one).

In mild, or ordinary, infections we come down to the two-day virus. In the intensified treatment, where there has been a lapse of time since the biting, or where the bites were bad, or on exposed parts of the body (the hands or the face) we more rapidly approach the strong virus and give the one-day strength.

The attitude of the people toward the treatment: Almost universally they approach it with fear and trembling. After the first injection that disappears except in some children and highly strung adults. I have in mind one patient who was a very nervous, neurotic woman and under high nervous tension. She complained a great deal of the treatment and yet each time that the injections were given when we asked her if it hurt, she would say it did not. The children with whom we have had trouble have been those over whom the parents had almost no control. One after having taken six or seven treatments became so highly wrought up that they were discontinued.

One man was treated for six or seven days and then said that he was going to Oak Forest, that he had tuberculosis quite badly. He reported again a few days ago and had not been at Oak Forest at all. He seemed to have suffered no ill results from his bite, which occurred in the latter part of June. Outside of those few instances almost every patient has continued the treatment to completion. One patient, a mail carrier bitten in the leg, took twenty-three injections, one child took only four. One police officer and a small boy took twenty-four each.

As to the symptoms during the course of the treatment; there is not much to say because there are no results observed so far that were traceable to the treatment. Some have shown a slight rise of temperature. One was about 99.6 at the beginning and after the first couple of days showed a record of over or about 100 or 101 for about seven or eight days, then it dropped back to 99 and at the end of the treatment was about normal.

Another ran a sub-normal, between 99 and 98. Another has been running 99 and 100 during the entire course of the treatment. Two days showed less, about 98.4 or 98.6, but practically normal.

Unfortunately, however, any ailment that may come upon the patient during the course of the treatment is ascribed to the treatment. One man failed to report for treatment one day. He said that he had had cramps so that he could not get up. Evidently he had eaten something that did not agree with him. He was questioned very closely, to try to establish some connection between the treatment and his sickness, but we could not find anything.

One patient came regularly for treatment several days (I have forgotten just exactly how long). She was bitten on August 19 but did not report until the 27th. She was very averse to taking the treatment, claiming to have been advised both for and against taking treatment on all sides. She had received letters from the Health Department urging treatment and had been advised by friends that if the bite did not kill her the treatment surely would. She completed treatment and then, unfortunately, contracted pneumonia and died. So far thorough investigation has been unable to prove any connection between the treatment and the pneumonia which caused her death. I have been given to understand that the case was typical lobular pneumonia and could not be ascribed to the treatment. When she completed the treatment she was in as good health as when she began, in fact better, for when she first came to us her anxiety over her bite and the possible outcome of the treatment had told on her physical condition.

We have treated so far (as I said in the beginning) forty-five cases and with the one exception no one has shown any ill effects from the treatment. The other three cases mentioned before by Dr. Tonney and others, had not taken treatment at all so far as I know. The little boy whom I saw last Friday night had had no treatment. His mother, unfortunately, was in an intoxicated condition and did not seem to know very much about it. She was asked how long it had been since

the boy was bitten and she said about six weeks. She said that the bite was not the cause of his sickness—that he had tonsillitis, that he often had it. She did not believe he had hydrophobia even at the time of his death. The other case was more marked. In both we tried the immunized human serum. We had two patients report who were infected. Extracted about half an ounce of blood. Both patients were well along toward the last stage before they came to the County Hospital.

We have good grounds for believing that if they had been taken in at the onset of the symptoms there would have been hope of their recovery with the immunized human serum. The fact remains, however, that we did not get any results from the serum we did use.

I wish to say in closing that I like the manner in which the speakers have all taken the blame from where it does not belong and placed it where it does belong. It is not the fault of the Health Department, nor of the police department, nor of the medical profession, but the fault of the people that there is such a thing as hydrophobia. When such simple measures will eradicate the disease entirely it seems to me the fact should be brought before the people in such a way that they will recognize the absolute disgrace of having it in the city. There is no possible excuse but positive negligence. If the people of Chicago could be aroused to a proper sense of their responsibility so that the law would appeal to me as well as to you in the matter of dogs it would not take them long to have something definite accomplished. When the people of Chicago realize that an unmuzzled dog is a positive menace there will be a change and it seems to me that in a few years time the entire disease would be eradicated. While we have a mortality of only four this year, yet that is four too many for it is four people who have died of a preventable disease and who have died because of neglect on the part of someone. I have my doubts, however, about this being done.

Dr. T. J. Sullivan: When a dog is rabid three things may happen: a man is bitten and the dog is immediately killed by a policeman or someone in the neighborhood. A dog has bitten someone and disappeared down a nearby alley and it is impossible to locate him. Or, a dog has bitten a person and is still available and can be kept for observation and control. If they will follow out that method in these three conditions it is a very easy matter to take proper care. The dog that has been killed should have its head removed and the brain examined. In that case it should be no difficult matter to say when treatment should be given. When a dog has disappeared, if it acted in a manner to lead one to believe he was suffering from rabies the patient should receive treatment to be on the safe side. In the third case, when he is still available: he should be put under control.

Many years ago I had occasion to call Dr. Lagorio. At that time he recommended confining the dog for ten days. That course I have followed. I always advise that the animal be kept tied up and properly cared for for ten days and if he is well and happy at the end of that time he is safe to let go. I see Dr. Lagorio now recommends fourteen days.

I have instructed everyone with whom I have come in contact of the fallacy of killing the dog. It is not necessary. Under these three lines of procedure we are safe.

Unfortunately I have observed two deaths from hydrophobia. A saloonkeeper was bitten and another person a mile away was also bitten. The man bitten last died before the saloonkeeper did. I saw him in the last stages of the disease. The fear, the horror of those about him, the screeching, the struggling and calling out "I cannot get air, I cannot get air," and the shrieks so different from any other disease are never to be forgotten. However, water did not frighten him. That is well known and well written up. He said he could not swallow. Then he would cry out with pain and have it pass through the diaphragm. I kept him under ether to allay the pain until he died.

The next patient was a boy of 11 years, whom I was called to see in consultation. He was suffering from symptoms existing from the day before. The family were unable to make a diagnosis. Arriving there I asked him to swallow. When he attempted to swallow he had all the fearful symptoms so peculiar to this

disease and shrieked. Then by getting behind him and slapping him I brought on the spasm. Then I knew there was no doubt as to the diagnosis. It was terrible the suffering of the father and mother when told that he had hydrophobia and must die. They could scarcely believe that he had it and insisted that he had not been bitten. Everyone in the neighborhood was alarmed. The father went in a carriage to Dr. Lagorio to see if there was a possible chance of anything being done for him, but there was not. Finally a little boy of the neighborhood came in and called to the mind of the father that the boy had come home about four weeks before telling of catching a little dog. He said he was wild and would not let him catch him and bit the child, but the bite did not amount to anything. Then the father remembered that he had seen the wound and that it was nothing but a little scratch.

We ought to educate the people. We cannot educate a large mass of them at any one time and a certain number will always go without treatment. The time to begin is right now. With the help of the Health Department and the Police Department and proper education this disease can be eradicated.

Dr. Sayre: I notice that the opinion seems to be that the dog should be confined from ten to fourteen days, yet most of the cases mentioned developed after a lapse of four to six weeks. I think we should confine the dog not less than four weeks.

For ten years I was a veterinary surgeon and I do not believe it would be an exaggeration to say that I have seen several hundred rabid dogs and as many rabid horses. The outbreak of the disease has varied from three weeks to six months after the animal was bitten. One outbreak was in a stable where in December a dog was seen to be acting queerly and bit several horses before it was killed by one of the men. The first week in January one animal was brought to the hospital. It was a horse belonging to Burley and Company. It was just beginning to show symptoms and we were not sure it was rabies. We ordered it home at once. That same evening he was perfectly wild and had to be destroyed. Then the horses kept coming down one after another until fifteen were destroyed, the last one in May, and they were all bitten in December. I have seen that happen a number of times. So I think in any case of dog bite the dog should be confined not less than a month.

I do not know whether Dr. Lagorio will recognize me or not, as it is 15 years since I was in veterinary practice, but I have called upon him several times to examine dogs to tell whether they were rabid or not and he has held many post-mortems for me.

This evening has been extremely interesting to me, both the paper and the discussions, but I believe we are not safe unless we confine a dog longer than from ten to fourteen days, because in no case that I can recall has the disease developed under three weeks after the bite. Anything that is as serious as this disease should have ample time to safeguard the public.

Dr. Maximilian Herzog: If we were to confine every dog and every other animal during the entire possible period of incubation, we should have to confine them for three years, because it is a well-known fact that the period of incubation of rabies may extend in man and in horses and cows to three years and perhaps more. We do not know what the outside limit of the period of incubation may be in the dog. The long period of incubation, possible in rabies, is still one of the mysterious elements in the natural history of the disease, but the probable explanation is, that rabies, evidently like such well-known protozoan diseases as malaria, trypanosomiasis and Texas fever of cattle, may be latent in the body of man and animals. The observations of Paltauf, made a few years ago, clearly point to the probability of the latency of rabies. Paltauf made post-mortem examinations on the bodies of four persons who had been bitten by rabid dogs. Pasteur treatment had just been started, but the four patients died of intercurrent diseases. Paltauf inoculated portions of the brains and cords from the four cases into rabbits, and these animals all died from the slow third form of rabies, the so-called consumptive form. Now, since the susceptibility of man, as I will show in a minute, is not very great, it cannot be supposed that four consecutive cases

of bites by rabid dogs would all have led to rabies, but it must rather be assumed that rabies in man generally leads to a period of latency, and that in the great majority of cases the virus will be exterminated by the natural protective powers of the body.

A great deal has been said here to-night about the skepticism among the people as to whether or not there is such a disease as rabies. There is, of course; and it is as well defined a specific infectious disease as typhoid fever, cholera, plague, tuberculosis, etc. Strange to say, not one of the speakers has given us the underlying reason for the popular skepticism about the reality of the existence of rabies. The true reason is that man is not very susceptible to rabies. According to the statistics of Paltauf, only about 6 to 9 per cent. of persons bitten by rabid dogs develop rabies. Kirchner's figures for Germany give only 2 to 3 per cent. of all cases. Hoegyes gives a percentage of 13.9, while other authors give between 5 and 6 per cent. Most professional men seem to labor under the impression that every person bitten by a rabid dog will develop rabies, but this is certainly not the case. A good deal depends upon the site of the wound —the nearer it is to the central nervous system the greater the chance of the appearance of rabies; hence, wounds of the face are particularly dangerous. The virus of rabies, probably presented by the so-called Negri bodies, which are very likely protozoa, must first travel along the nerve tracks to the central nervous system before the disease can be produced.

Some points have been made which I wish to emphasize again, because experience in the microscopic examination of a considerable number of dogs' brains in cases of suspected or real rabies has impressed me with their importance.

Dogs showing symptoms of rabies should not be killed, but should be confined for observation, because if they are killed too early in the development of the disease the Negri bodies are not found in the brain, and to find positive proof of the existence of the disease from subdural inoculation of rabbits takes quite a little time, and when a positive diagnosis is made it may be too late to treat the bitten person successfully.

Another point. It has been said that the Pasteur treatment is always absolutely harmless. This is not the case. One out of a thousand patients, receiving this treatment, develops nervous symptoms similar to those of Landry's paralysis. However, only one case, so far as I know, has died from this affection developed after the Pasteur treatment. However, I should say that the Pasteur treatment is always absolutely indicated after bites by rabid dogs. We cannot say in advance whether a person will prove to be susceptible or not and the dangers of the treatment are minimal.

Most of the discussion has been along the line of what to do to stamp out rabies. We should be able to stamp it out as it has been stamped out in several countries of Europe, but the only way to do it is to educate the people to kill off the stray dogs, to muzzle those that have owners, and to report every suspected case. With that we all fully agree. I have kept dogs all my life, but I agree that they should be under control, and until that is done we shall not be able to stamp out rabies.

Dr. Stimson (closing the discussion): As to the question of confinement. Say a dog has bitten a person. He is apparently well and there is no history that he himself has been bitten, but we do not know but he may have been. How long shall we observe him before we admit that there is no danger? I think ten days to two weeks is a reasonable time. I do not say he will never go mad after that time, but the period at which the bite would be dangerous to man would be within ten days to two weeks. In other words, the saliva is not known to be virulent for longer than that time in animals before actual symptoms present.

In speaking of the mortality in man, Dr. Herzog has called attention to the fact that only a very small part of those bitten ever develop rabies. Old statistics give 16 to 20 per cent. That has been considerably reduced as we have got more accurate statistics with more exact information as to whether it was a "sure enough" bite and not just a scratch, and whether the dog was actually rabid. In Prussia the statistics are given by Döbert as 14 per cent. of those significantly

bitten by dogs known to be rabid. These are undoubtedly as correct figures as any. It is my own impression, taking the average of cases as they present to me for treatment, that the mortality would be between 5 and 10 per cent. The mortality in treated persons has been, in our experience, between one-third and one-half of 1 per cent. in all treatments sent out (and at the Hygienic Laboratory), we have treated 350 with no deaths so far.

Another point in Dr. Herzog's remarks is the danger of the treatment itself. He mentioned the possibility of paralysis, a matter on which there is also considerable literature. This need not frighten us away from the treatment, because in a review of the literature over 100,000 persons had been treated and of these only forty had this outcome and two resulted fatally.

THE EUGLOBULIN REACTION IN THE URINE*

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I will employ the few minutes at my disposal to consider the clinical significance of the so-called "euglobulin reaction" in the urine. The technic of this reaction is as follows: Dilute 3 to 5 c.c. of the urine to be tested with four to five times its volume of cold distilled water and acidulate strongly by adding 2 to 3 c.c. of 50 per cent. acetic acid cold, not heating. A diffuse cloudiness, becoming more intense on standing, follows the addition of the acid and is nucleo-proteid or euglobulin.

This simple test has been described in laboratory text-books for many years, and is probably familiar to all possessing any urinary technic, yet its clinical significance, and especially its value in differential diagnosis, is little appreciated. The substance or substances reacting in the above manner to acetic acid have always been regarded as proteids. They were first demonstrated in the urine by Müller in 1885, and were termed by him "globulin." They were next identified by von Noorden as "mucin," this being in turn proved an error by Obermeyer, who claimed that the reaction was produced by "nucleo-albumin." Since then the acetic-acid reaction has generally been regarded clinically as demonstrating nucleo-albuminuria. Among physiologic chemists the matter has, however, not been allowed to rest here. Although theory has been rife, the problem is not yet settled. Important among the attempts at its solution are the observations of Mörner, who claimed that the whole, or at least a large part of the acetic-acid precipitate, consisted of pure proteid, combined with certain acids already present in the urine. These acids are nucleinic, chondroitin-sulphuric and taurocholic. The first two are, according to Mörner, always present in minimal quantity in normal urine. Taurocholic acid is not found in normal urine; it is a bile derivative and gains access to the urine in icterus. These acids combine with albumin entering the urine forming nucleo-albumin, or albumin-taurocholate, according to the acid present. Acetic acid precipitates these three compounds. These views of Mörner have

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found wide currency, and the precipitate was for a time known as "Mörner's albumin."

More recently, Matsumoto, Oswald and others, as a result of fractional precipitation, arrived at the conclusion that the precipitate with acetic acid consisted of a mixture of euglobulin and fibrinogen. This view has in many quarters superseded the claims of Mörner, and the reaction is now being known as the "euglobulin reaction," and the condition is termed "euglobulinuria." It may well be that there are under differing conditions two distinct proteids which react to acetic acid, at one time nucleo-albumin, at another euglobulin. Indeed, Matsumoto concedes that nucleo-albumin may occur simultaneously with euglobulin, but that it is much rarer and of secondary importance clinically. The whole matter requires further elucidation.

Turning now to the clinical significance of this reaction, we find it described in connection with a variety of disturbances, systemic as well as urinary, sometimes alone, and often in association with serum-albumin in the urine. In conditions bordering on the physiologic, it is found at times in the urine of individuals who have undergone severe exertion, after cold baths, following convulsions, and in the various forms of so-called physiologic or essential albuminuria. Under pathologic conditions it is found in the urine during the administration of certain drugs (mercury, arsenic, chloroform, etc.), and is occasionally present in catarrhal conditions of the lower urinary tract.

It has been claimed that practically every urine will give a precipitate with acetic acid. Judging from my own experience, I believe this statement to be a great exaggeration. It is possible that with large amounts of urine and using complicated chemical methods, a precipitate may be demonstrated, but it is clinically absent in normal urine, and even in pathologic urines the reaction is comparatively rare. In this connection we may note that Sarzin was unable to demonstrate the test in a single instance of 200 cases which he examined in Senator's clinic. Citron arrived at similar results, and Simon says that he found it in only a small percentage of several thousand urines.

The nucleo-proteids are obtainable from the nuclei and protoplasm of cells. They appear to be the most abundant of the proteid materials obtainable from cells. It is claimed that the proteids precipitated from the urine by acetic acid are derived from desquamating epithelia of the urinary tract, with resulting degeneration of cell nuclei and liberation of cellular proteids. Matsumoto denies this, and shows that even though a urine containing numerous epithelial casts, renal epithelia and leukocytes be allowed to stand for some time, a substance precipitated by acetic acid does not occur at all, or only in minute traces. Moreover, the conditions in which we find the reaction most constantly and typically present are not notable for epithelial desquamation. As a matter of fact, we find the euglobulin reaction present in the following three varieties: 1. Where there is irritation of the renal parenchyma, i. e., fevers, oxaluria, toxic irritations, infective nephritis. 2. In ureteral, vesical, prostatic and urethral catarrhs. 3. In conditions where we may assume there is present

some alteration of the blood proteins, i. e., essential anemias, leukemias, amyloidosis, orthostatic and adolescent albuminurias. Seldom do we encounter the reaction in greater than a minimal trace without there being serum-albumin or serum-globulin in the urine.

There are certain albuminurias which are being observed with some frequency by the discriminating clinician, but which are as a rule entirely misunderstood by the average practitioner. For want of a better name they may be designated "harmless albuminuria." They possess certain characteristics in common. They are met with as a rule in the first three decades of life, and most commonly before the age of 20, the quantity of albumin as a rule is not great, although it is subject to increase under certain special circumstances (excitement, exertion, upright position); there is often a certain intermittency in the excretion of albumin, which in special instances may assume a cyclical fluctuation; there is an absence of degenerative tube-casts, although hyalin and light granular casts are often found, and finally, although the albuminuria may be of long duration, there is a noticeable absence of the arterial hypertension and cardiac enlargement usual in chronic nephritis. This type of albuminuria has been more or less studied under certain special designations.

We have, for instance, been made familiar with orthostatic or postural albuminuria by an abundant literature, which, however, has not as yet revealed its true nature. Another form may be called "simple continuous albuminuria," a chronic albuminuria beginning in youth, usually of unknown origin, enduring for years without exerting any apparent detriment to the individual. Still a third has been described as "residual albuminuria," so called from its primary origin in an acute nephritis, this disappearing in all essentials except the albuminuria, which persists for months, perhaps years, without cardiovascular or other nephritis secondaries.

I wish to direct your attention to the fact that the presence of the euglobulin reaction in the urine is common to all these varieties of harmless albuminuria. It is as a rule typical and intense in such cases, euglobulin often being the predominating form of albumin in the urine. Attention has been called to this fact before by several authorities (Oswald, Fox, Williams), but it has escaped general notice. The euglobulin reaction is not observed in chronic nephritis. When we place these two facts together this test takes on a certain value, which I think is considerable, as a means of differentiating harmless from organic forms of albuminuria.

The importance of making the distinction is great. Harmless albuminurias are by no means infrequent. In my experience hardly a month passes without a case coming under observation. This form of albuminuria is usually accidentally discovered, and may often be revealed at life insurance examination. It is usually diagnosed as nephritis. This is a great mistake, for in the course of time the albuminuria almost always disappears without harm to the kidneys or the general health. The presence of the acetic-acid reaction marks such a case as harmless, and as a rule the more abundant the reaction the better the prognosis.

It is hardly necessary for me to state that other and extrarenal causes of the reaction should be excluded. This being done, the presence of euglobulin by the acetic-acid test should suggest a harmless type of albuminuria. The greatest difficulty in practice arises in the attempt to distinguish between harmless albuminuria and that dependent on established structural disease of the kidney. Very often, of course, the meaning of an albuminuria is sufficiently obvious. It is seldom that one will find oneself in doubt about acute nephritis or chronic tubal nephritis. The cases that give rise to perplexity are those in which albumin in the urine constitutes the only or almost the only symptom. It is in such cases that the acetic-acid reaction may prove of value.

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UNILATERAL PYELONEPHRITIS *

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This name is given to those cases in which one kidney remains healthy and the other is subject to degenerative changes the result of bacterial invasion on one side, followed by lodgment and precipitation of urinary solids, irritation and inflammatory purulent degeneration. These are cases in which early diagnosis is difficult and consequently rare.

It frequently happens that patients come under observation, who for years have been the subjects of obscure symptoms, such as pain in the back on riding, tenderness in the region of the waist, occasional disturbances of digestion with headaches, dizziness, rigors, occurring irregularly, or with some apparent regularity at intervals, and other symptoms common to a number of diseases. These patients have had no serious illness, but have been the rounds of doctors' offices, receiving all kinds of opinions, frequently because their own statements made light of the ailment. A little calomel was given for catharsis, or a little pepsin for indigestion, the symptoms passed away; the patient was more or less satisfied with the diagnosis and treatment. This went on for a time, when another train of symptoms appeared, slightly different from the preceding, which were given a different name and different treatment, again followed by recovery and satisfaction on the part of the patient. Again and again, a similar train of symptoms appeared, sometimes referred to the stomach, sometimes to a cold, sometimes to "inactive liver," sometimes varying slightly, but increasing in severity through a prolonged period of years. During all this time no very thorough examination seemed to be called for. No urinalysis was made, nor any palpation of the abdomen until the attacks became frequent. Persistent headaches with dizziness, pain through the infracostal regions into the back, sometimes down into the groin with stiffness and lameness, then sudden high fever, having its onset in pronounced

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chills, high temperature and perspiration, these chills reappearing on alternate days, sometimes irregularly, would call the patient's attention so pointedly, that he asked for more thorough investigation. At last a careful examination was made, the abdomen was palpated in various positions, urinary symptoms were recorded, and a urinalysis made with negative, sometimes with positive results.

The patient who comes with the foregoing history should be carefully questioned as to all forms of preceding minor ailments. The history may disclose no serious illness. There will have been attacks of rheumatism or tonsillitis, ordinary colds, la grippe, slight disturbances of digestion, but nothing to which the patient attached any special importance; nor will a history of lues or gonorrhea appear. Physical examination shows perhaps a patient well nourished, in the prime of life and activity, the very picture of health. Tongue is clean, bowels are regular, there is no disturbance of urinary function, and we are at a loss to account for those rigors and fever. Years ago, and perhaps recently, the diagnosis of malaria was made. But wait; if such a patient is watched, plasmodia cannot be found in the blood. There is no history of residence in malarial regions, nor does the symptomatology tally with that of malaria. Examination of the blood shows a normal proportion of reds and whites, and the hemoglobin content is normal. So far as can be ascertained, there is no disturbance of digestion at the time. Stomach, liver and intestines are normal. A twenty-four-hour specimen of urine is now carefully examined chemically and microscopically. No pathologic constituents are found. In the language of the congressman from North Carolina, "Where are we at?" We must continue our examinations and our study of this case. The tests described in preceding papers will now be made. Pretty soon also a specimen of urine is found in which pus, blood and bacteria abound. The finding of pathologic urine at intervals of itself calls attention to the fact that the trouble may be unilateral. We now resort to the cystoscope and to ureteral catheters. The catheter is passed into one ureter; the specimen thus obtained is perfectly normal. If the catheter passes into the other ureter, there is not much trouble in demonstrating nephritis. But the catheter may not pass on that side. One is not quite certain whether this is due to faulty manipulation, or to obstruction, or possibly occlusion of the ureter. It may be that the cystoscopic light shows erosion and inflammation at the orifice of the ureter on the affected side, or it may not show this. It is safe to conclude that where urine is pathologic part of the time and normal the rest of the time, that the ureter on the side affected is closed part of the time. If this has occurred, then the pelvis of the kidney will become filled up and the kidney enlarged, until in the lapse of time the cortex is destroyed, and it is a mere bag filled with purulent, urinous fluid which gives rise to intermittent symptoms. This sort of degeneration differs from cystic kidney. Meanwhile the other kidney is stimulated gradually to more vigorous excretion. Its parenchyma becomes increased, it has to perform the labor that the other organ fails to perform, so that by the time one organ is useless the other has become doubly useful. This continuance of function permits the individual to

maintain a fair degree of health, or even good health, for years. These slow insidious cases of unilateral pyelonephritis are puzzling and may escape observation for a long time.

The pathology of these cases has its origin in some remote minor infection of the system. Germs enter by way of the tonsils, an attack of tonsillitis ensues and subsides, or is followed by a rheumatoid attack. The lymphatics are invaded by bacteria. Their toxins are not all eliminated. In part, they pass out through the kidneys. Toxin producing bacteria circulate in the blood, and are filtered out through or into the tubuli uriniferi and glomeruli, where they produce irritation and precipitation of toxins, which in turn precipitate the calcium and urea salts, and so form a nidus for calculi. Large numbers of leukocytes congregate, but their phagocytic action is not sufficient to overcome the localized trouble, and pus accumulates, part of which is discharged, so long as the ureter remains patulous. If minute calculi are set free, they will pass out, or they may lodge in the calyces, but if they are imbedded they remain fixed and so become foci for the deposit of pus.

The kidney as a filter retains part of the toxin-producing bacteria, so here is the beginning of a trouble, which in the course of years develops extensive pyelonephritis. The external symptoms manifest themselves only in a slight manner from time to time, becoming severe and pronounced when the kidney is further degenerated, the ureter occluded and the whole filled with purulent fluid. Parenchymatous nephritis follows scarlatina, diphtheria and other diseases. In like manner nephritis will follow lesser ailments. It is well recognized that irritation of the digestive tract may irritate the integument. In like manner the kidneys are irritated in their efforts to eliminate bacteria and their toxins. Indeed, infections supposed to travel upward per ureter may travel downward by a more circuitous route. Is not the urine modified by all the various febrile disturbances? What more reasonable than that disease germs which find their atrium in the tonsils or in some lesion of the skin, should endeavor to find their exit with the urine? Mixing with an acid excretion they produce precipitates at the very points of exit and so form calculi and localized nephritis.

Through a tense abdomen such a kidney is not always easily demonstrated. It pushes its way downward and laterally, crowding aside the peritoneum and the organs within it. Its own contents fluctuate so that palpation must be very carefully conducted if the kidney is to be felt. Usually, however, at the advanced stage percussion and palpation, together with urinalyses and catheterization of ureters, will make the demonstration of a pyelonephritis certain.

Or the case may have a different beginning. The patient in the prime of health is suddenly attacked with excruciating pains of such extremely agonizing character that the practitioner who sees the case has no difficulty in making the diagnosis of "gravel." Nephritic colic is so characteristic that it can usually be recognized, but the attack terminates and it is years before another occurs. Not all cases of nephritic colic demonstrate nephrolithiasis or lead to pyelonephritis. If, however, a precipitate

occurs in one of the calyces, it will in time produce a calculus and set up disturbance. If a stone forms in the pelvis of the kidney and becomes so large that it cannot pass down it will occlude the ureter and an acute hydronephrosis is set up. This kind of kidney will develop in size, with gradually increasing sense of discomfort and no marked symptoms until it is enormously distended, filling as much as one-third of the abdominal cavity. Such cases are known to have been operated on for appendicitis or cholecystitis, with, of course, no alleviation of symptoms. In a recent post mortem, where death occurred from acute peritonitis, the patient had a long history of pain and local disturbance, and was examined by several of our best men, none of whom "tumbled" to the possibility of a pyelonephritis. Yet the kidney contained about 2½ pints of purulent fluid, and had only a thin wall representing what was formerly the cortex. It is quite easy to overlook such kidneys; in fact, the stomach, the appendix, the ovary, the gall-bladder and other organs are accused of disturbances which in the end are traceable to this form of disease.

CASE 1.—Patient, a high-school principal with no history of previous illness, became the subject of repeated, violent, excruciating pain in the groin of the right side and was operated on for appendicitis. His pain returned before the appendectomy wound had healed. He became a morphin fiend. Large quantities of morphin scarcely sufficed to alleviate the excruciating agony of his sufferings. He added whisky to the morphin, and obtained occasional relief when the paroxysm was severe. On careful examination he was told that he had pyelonephritis with stone in his kidney. Further examination by means of the *x*-ray revealed stones lying in the pelvis of the kidney. Nephrectomy gave complete relief.

CASE 2.—Fireman of stationary engine, aged 35 years. Worked at this for years. Never sick except colds; tonsillitis, now and then. Within the last three years occasional headaches, dizziness, high fever, and consequent general prostration. Chills and temperature would recur at irregular intervals. It hurt to ride in a street car; his back was sore over right kidney region. Urine showed pus and blood after each attack of fever. The left side was not at all sore. Operation for removal of right kidney which was found to contain a large quantity of pus in which tubercle bacilli were found. Slow recovery. Took out-door and diet treatment, so that his recovery from tuberculosis seems to be complete, for he is in excellent flesh and strength a year later. Repeated urinalyses show normal urine.

CASE 3.—G. Moulder, aged 37 years. A muscular, well built man weighing 160 pounds. Obscure symptoms of indigestion, backache, weakness, occasional headaches. No history of any previous illness, except occasional attacks of sore throat. Had sudden onset of fever with rigors, pain in the back, and high temperature. The rigors were repeated the third day, then the fifth day, and subsided with apparent recovery. Patient remained well for six months, then another attack similar to the first. He had four or five attacks of this kind at intervals. The last of which I knew was intense in its severity, temperature rising to 106°, but subsided after a few hours. Palpation revealed a left kidney large and tender. Urinalyses showed blood and abundant pus. When told that he had a case of pyelonephritis and that an operation was necessary, I was dismissed, and he passed under the care of another physician who consented to treat him without operation. A few months after this the patient was under my observation for a short time. He was much reduced in health and vigor, with his old symptoms still coming at irregular intervals.

CASE 4.—Principal of high school, aged 47 years. No history of preceding illness except diseases of childhood and tonsillitis. For the past twelve years

he had "spells," some of them of indefinable illness with periods of anorexia, malaise and slight fever. These attacks would pass away, leaving him in fair condition, except that he lacked vigor and ambition. The "spells" became more frequent, appearing at intervals of a few months. Finally, during last summer he went to the hospital and requested an examination, which I carefully made, including urinalyses. I was able to palpate a very large right kidney, which was not very tender on pressure, but it filled apparently the right half of the abdominal cavity. Urinalyses were made at intervals, some of which showed perfectly normal urine, and some the presence of pus. He consented to the removal of the right kidney which was found to be a great bag full of urinous pus, weighing in all about forty ounces, and a calculus which weighed three hundred grains. The recovery from the operation was complete and satisfactory, and he continues his occupation as teacher in excellent health.

CASE 5.—Laborer and farmer, aged 47 years. No history of severe illness, but for years he had run down, lost flesh, energy and strength. He was repeatedly examined and treated for indigestion. Was an excessive user of tobacco and a moderate drinker. Six weeks before I saw him urinalysis was made, and he was told that his kidneys were all right. When coming under my observation, he presented a sallow, almost cachectic appearance. He complained of pain in his back, occasional headaches and fever with chills followed by sweating. On examination his right kidney was found very much enlarged. However, he refused to have an operation, but later consented when urinalysis showed pus. This kidney contained two pints of pus, and a calculus down in its pelvis which occluded the ureter. Recovery after operation was perfect. He regained flesh rapidly, and the remaining kidney is functionating with only a trace of albumin now and then.

It will be seen from the foregoing that I have not referred to infections of the kidney pelvis by way of the ureter. Such infections are frequent, but they do not account for pyelonephritis which occurs in patients who have no history of urethritis or cystitis. The cases in which infection travels from below upward may be readily distinguished. It is those in which the onset of symptoms is gradual and the causation obscure, that we should be on our guard as to the possibility of kidney infection by means of bacteria traveling through the lymph-channels and capillaries. The bacillus coli communis, the pyocyaneus, the tubercle bacillus—setting up tuberculosis of the kidney, the bacillus typhosus, staphylococci or any other pathogenic germs may be the cause of this form of kidney infection, finding lodgment without primary serious disease of the general system.

The clinical picture of an acute attack in a case of this kind is characteristic. After some indiscretion of diet or exposure or overwork, the patient becomes ill with nausea, vomiting or a general malaise resembling a variety of troubles. He is suddenly prostrated, takes to his bed, chills are violent, temperature rises sometimes to 106 F., remains there for a short time, when it drops to subnormal, and again rises with a chill or remains low. During this time there is no localized pain except slight soreness on palpation, so that most patients will refuse to believe when it is suggested that these attacks are due to pus in a kidney. Or there may be intense soreness over the entire peritoneum, so that palpation is difficult. A little later in the attack the kidney may be felt and may be quite distinct as a huge, boggy cyst filling one of the upper quadrants of the abdomen. There is usually a point of tenderness half way between the termination of the ninth rib and the umbilicus. This point varies with

the size of the kidney. Of course, if the left kidney is involved, care must be taken to differentiate from enlarged spleen.

If the latter be present, the symptomatology of the case will differ radically. In examining for enlarged kidney the patient should always be turned on his side, even clear over, face downward. By varying positions from the dorsal to the prone, the sense of touch is materially aided. In muscular subjects palpation is always difficult. Just after an attack the urine should be carefully watched. In fact, all of the urine should for several days be examined, so long as there is any question about the diagnosis.

It is of utmost importance that early diagnosis be made; hence it is necessary to make frequent urinalyses when a kidney is suspected. Thoroughness here will lead to the right solution of a puzzling condition. It is never wise to dismiss the patient with the assurance that his kidneys are all right. To do this will lead to error. Recently I removed a kidney containing 40 ounces of pus and a large calculus from a man whose urine was examined six weeks before, and the assurance given him that his kidneys were all right. If these kidneys can be detected early it becomes possible to treat them successfully by incision and drainage, or decapsulation, or removal of the calculus. If, however, the diagnosis is not made until the parenchyma of the organ has degenerated, then nothing short of complete nephrectomy will suffice. Long before this stage is reached, the patient will be a physical wreck, not knowing why, and when the nephrectomy is completed, he is minus one important organ and subject to the increased risk of diminished function by the use of only one. Therefore, early detection of this condition is all important, because then the patient can be relieved without sacrificing a kidney.

This question is up to the practitioner, whose diagnostic acumen will be put to the test. A careful exercise of it, however, will lead him to the right conclusion. The consultant or the surgeon who will then see the case will have the easier task of confirming his colleague's diagnosis. By the concurrence of two or more carefully formed opinions, the patient will be led to adopt early and radical measures for relief.

FUNCTIONAL KIDNEY DIAGNOSIS *

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It is impossible, in the limited time at our disposal, to go at any length into the details of the successive steps of the progress of renal surgery. From the time that the first kidney operation was performed, now over fifty years ago, at which time the diagnosis was made with the usual physical methods, and with the ordinary urinary examinations, has the need of further aids in order to establish both a correct diagnosis

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and prognosis been recognized; so from that time, up to the present, new methods of examination and aids of all kinds have been introduced. As a result of these advances in diagnosis, the operative results undoubtedly are far better now than formerly.

It was Virchow who first stated that it was necessary to take the functional activity of organs into consideration, and not always to be guided by the pathologic changes. He pointed out that organs almost entirely diseased often carried out the work assigned them far better than organs that "appeared" healthy. These facts are known to be true clinically. To illustrate: it has been recognized clinically that in hysterical patients anuria may set in, in individuals without known kidney lesions.

Under these circumstances it was recognized long ago that it would be desirable, if possible, to institute methods of examination of the kidneys so that their functional capacity could be determined previous to the undertaking of any operative procedure. This really is the duty of the functional test.

The kidney has a distinct function, both in health and disease. In a general way, it may be stated that in health, the kidney separates certain ingredients from the blood and thus excretes or eliminates in the urine products which no longer need be or can be of service to the body. How and why and when this is done are all still matters of conjecture. In disease pathologic products are found in the urine, as well as variable changes in the percentage rate of products which appear in healthy urine.

It is never to be forgotten that the clinical examination, urinary examination and all other methods of examination must be used whenever considering problems of surgical character. We are inclined to believe that poor operative results, or the belief that better results ought to be attained, have been and are the real factors in the devising of tests which are used for purposes of this kind.

It is not the object of this paper to discuss in detail nor to take up the history of any one or all of these well-known methods which have been in use for some time past.

Considering not only all the speculation as to the value and shortcomings of all these functional tests, it has, ever since the knowledge of functional activity of the kidneys, been a problem to find and introduce a method that would overcome the objections raised by those who do not believe in the possibility of methods which permit of estimating the functional capacity, but also at the same time be easy to carry out and by which accurate results are to be obtained. Thereby to overcome the opponents who believe that such a test is only of value for the particular time that it is carried out; or by those who believe that all color tests are inaccurate, and that functional tests often respond in kidneys that are greatly diseased, or do not respond in those which are apparently healthy, or by those who believe that to simply estimate one substance which may be eliminated should not be taken for a guide as to the power of elimination of other substances.

It must be admitted that there is always room for error in every test, besides room for error in its interpretation. Yet whenever a test appears to be accurate, and the results are verified, it is to be given every credit until shown to be inaccurate.

It is now generally recognized that whenever considering operative work on the higher urinary tract, it becomes necessary to estimate the functional capacity of each kidney separately, which necessitates the collection of the urine from each kidney separately. This can be done in different ways. We consider that ureteral catheterization is the most desirable as well as the most exact method. The compression of one ureter and segregation are hardly sufficient for purposes of this kind. It is needless to go into the technical points in the use of the ureteral catheterization instruments, as these points are well known to all.

We also test the renal function in surgical cases of the prostate and bladder. In these groups of cases the combined or mixed urine is used, as it is either passed by the patient or obtained by catheterization of the bladder, not by catheterization of the kidneys.

We wish to present some figures, selected from a large number of cases, gained in connection with our work with the phenolsulphonephthalein test, first introduced by Geraghty and Rowntree.

The technic of the test is as follows: Fifteen to thirty minutes before the drug is administered the patient is instructed to drink from 400 to 500 c.c. of water, in order to insure good urinary secretion. Unless a good secretion of urine is present, failure of the coloring matter to appear in the urine might erroneously be attributed to lack of excretion of the drug by the kidney, and hence be a source of error, as regards the length of time of appearance.

In cases where an obstructive condition exists at the neck of the bladder (enlarged prostate, contracture of the neck, tumor, etc.), it is best to determine whether or not a retention of urine exists. If a retention has been demonstrated, it is best to fix the catheter *in situ*, and to carry out the test with the catheter in the bladder.

In the cases under discussion only accurate results can be obtained by double ureteral catheterization. The so-called flute-end ureteral catheters were used. These catheters have an eye at the end and two eyes on the sides, giving three openings instead of one. It is best to use catheters of large calibre, so as to collect all the urine, and if possible not permit any to pass alongside the catheter. For various reasons, in a few instances we have been able to catheterize only one side, and have, therefore, been obliged to insert a catheter into the bladder in order to collect the urine which would supposedly represent the other side—and it would, if the catheter in the ureter was of type mentioned and was large enough to prevent urine from passing alongside.

When all is ready 1 c.c. of a solution of phenolsulphonephthalein containing 6 mg., is injected subcutaneously or intramuscularly. The ends of the catheters are placed into previously marked test-tubes containing a drop of a 25 per cent. solution of sodium hydrate, and the time noted when the first pink color appears in the test-tube. The urine is collected

from each catheter for one hour, at which time new receptacles take the place of the old, and the urine is collected for a second hour.

In those cases where the combined or mixed urine is used for determining the functional activity, a catheter is introduced into the bladder, and if necessary the bladder is thoroughly irrigated before adjusting the catheter. This catheter is left *in situ* until the first pink color appears in the alkali solution as above mentioned. The subsequent mode of procedure varies with the individual case. If there is no retention of urine, the catheter is withdrawn and the patient voids his urine at the end of one and two hours, respectively. If, however, a certain amount of retention is present, one of two modes of procedure may be followed: either leaving the catheter in the bladder for two hours and changing receptacles at the end of the first and second hours, or withdrawing the catheter as soon as the drug appears and then passing a catheter at the end of the first and second hours.

For the past few months the same quantity of the drug, namely, 6 mg., has been injected intravenously. The time of appearance of the drug is much more rapid and the total elimination is complete in one hour.

The quantity of urine is measured, specific gravity taken and the amount of urea estimated. The ordinary chemical and microscopic examinations are also carried out.

To each specimen of urine a few drops of a 25 per cent. solution of sodium hydrate are added, whereon the urine assumes a beautiful purple red color. Each specimen is then diluted to 1,000 c.c., and the percentage of dye excreted is estimated with the Duboscq colorimeter by comparison with a standard solution containing 3 mg. to the liter. It is advisable to have the solution distinctly alkaline to bring out as much of the coloring matter as possible.

Geraghty and Rowntree noted that in normal cases five to eleven minutes were required for the appearance of the dye. In our series of normal cases from seven to twelve minutes were required, with an average of ten minutes. They also found that during the first hour 40 to 60 per cent. was excreted, and from 20 to 25 per cent. in the second hour. The figures obtained for the first hour from our normal cases were 40 to 50 per cent., and for the second hour 20 to 35 per cent.

Following the intravenous injection the drug appears in the urine in from two to three minutes and elimination is complete in one hour. About 75 to 80 per cent. is recovered in one hour.

In carrying out this work we have classified and arranged the cases in several groups, depending on whether normal or pathologic, the nature of the lesion, etc. We wish to mention a few examples of each group of cases.

I. Surgical lesions in higher urinary tract.

CASE 1.—Mr. K. Diagnosis, renal calculus (left).

Complaint: For several years has had localized pain in the back over the left kidney. At intervals, varying from one to three or four months, he would have severe attacks of chills and fever, the temperature rising as high as 104 F.

The urine contained a large amount of pus. X-ray examination was negative. Double ureteral catheterization: pus on the left side and clear urine without casts or albumin on the right side. Injection of 6 mg. of phenolsulphonephthalein. Time of appearance, right, 5 minutes; left 25 minutes. Amount excreted for two hours, right 61.37 per cent; left 0.

The left side excreted such a small amount that it was impossible to obtain more than a trace of pink color in the alkali solution. Left-sided nephrectomy. A large sac containing only a few remnants of kidney tissue, and three stones, was removed. Uneventful convalescence.

CASE 2.—Miss J. Tuberculosis of the kidney.

Complaint: About one year prior to coming under observation, patient had been operated on for a bladder stone. She never saw the stone, nor did she obtain any relief from this operation. Her only symptoms were frequency of urination and burning in the urethra.

Cystoscopy and double-sided ureteral catheterization. The urine obtained from the left catheter showed the presence of pus and tubercle bacilli. Right catheter urine clear and free from albumin and casts. Injection of 6 mg. of phenolsulphonephthalein. Time of appearance, right 7 minutes; left 12 minutes. Total drug excreted, right 47.08 per cent.; left 6.32 per cent.

Nephro-ureterectomy. Removal of an enlarged kidney nearly completely destroyed by tuberculosis. Uneventful convalescence.

In these two cases the phenolsulphonephthalein test permitted us to make the following deductions:

1. That a healthy functionating kidney was present and that operation was safe (nephrectomy). This statement was borne out by the post-operative course in each case.

2. That in the first case the pathologic process had completely destroyed the kidney substance, and that in the second case only a small amount of secreting kidney tissue was present. Both of these statements were proved to be correct after the respective kidneys had been removed and examined.

That this test is of value in another class of cases is illustrated by the following:

CASE 3.—Mr. K. Painless hematuria.

Cystoscopy showed blood coming from the left ureteral orifice. Upon admission to the hospital, cessation of the bleeding.

Question: Suppose we had not made the above mentioned cystoscopic and demonstrated the left side as being the side which was the source of the hemorrhage, would it be possible to do so by employing the phenolsulphonephthalein test and so demonstrating a difference in the functionating capacity of the two kidneys?

Injection of 6 mg. of phenolsulphonephthalein. Time of appearance, right 2 minutes; left 2¼ minutes. Total drug excreted, right 49.01 per cent.; left 30.45 per cent.

The early appearance of the drug in the urine is due to the fact that it was given intravenously. It shows a difference of one-fourth of a minute in favor of the right side. When we come to estimate the total work of each kidney, we see that the bleeding side excreted 30.45 per cent., whereas the well side excreted 49.01 per cent., quite clearly demonstrating a difference in the functional capacity of the two kidneys, this difference being most marked on the diseased side.

What is the inference? In this case we are undoubtedly dealing with a recent pathologic process, which process has not had time to destroy a

large amount of kidney tissue. In consequence of this the kidney function is still good, but it is impaired to such a degree that the impairment can be determined clinically by the use of this test.

II. Surgical lesions in lower urinary tract.

For purposes of determining the renal function in lesions of the lower urinary tract, such as enlarged prostates, bladder tumors, strictures of the urethra, etc., we have been using the phenolsulphonephthalein test as a routine procedure before instituting operative measures. That determining the kidney function in this class of cases has a distinct value based on the findings, and hence may be used as a factor in determining the postoperative prognosis, is illustrated by the following three cases:

CASE 4.—Mr. K., aged 56 years. For the past three years has been obliged to urinate two or three times each night, ten or twelve times during the day. Feeling of pressure in abdomen, particularly before act of urination. Often difficulty in starting stream which would often be small and without force.

Rectal examination showed large double lobes, medium consistency; 100 c.c. retention of urine. Examination of the abdomen and chest negative. Cystoscopically, lateral lobe enlargement and median lobe size of English walnut. One papilloma size of hen's egg just one centimeter to left of left ureteral orifice.

Injection subcutaneously of 6 mg. of phenolsulphonephthalein: Time of appearance, 11 minutes; total drug excreted, 61.17 per cent.

Operation: suprapubic prostatectomy and removal of the papilloma. Uneventful recovery.

In this case the function was good, both as regards the time of appearance of the drug and the total drug excreted.

CASE 5.—Mr. McK, aged 71 years. Enlarged prostate and vesical calculi. Greatly emaciated and general appearance of suffering. For past eighteen months treated with irrigations and medical treatment for cystitis. More or less constant tenemus with pain in genitalia.

Examination: arteriosclerosis very marked, pulse irregular in character, temperature varying from 99.2 to 100.6 daily. Suprapubic pressure elicited severe pain. Rectal examination: fairly small, irregularly shaped, fairly hard prostate. Seminal vesicles sensitive. Kidneys not palpable. Cystoscopically, bladder irrigated and filled with 120 c.c. water. Examination made with considerable difficulty, showing phosphatic stone size of large Brazilian nut. Marked cystitis, trabeculated bladder and pronounced rosette-shaped prostate.

Injection subcutaneously of 6 mg. of phenolsulphonephthalein: Time of appearance, 50 minutes. Total drug excreted, 43.47 per cent.

These figures show both a delayed time of appearance of the drug as well as diminished total output.

The indications for improving the renal function are quite evident. The patient was accordingly treated with irrigations, permanent catheterization, baths, diuretics and cathartics, and a second reading made four days later, with the following result:

Injection subcutaneously of 6 mg. of phenolsulphonephthalein: Time of appearance, 20 minutes. Total drug excreted, 53.5 per cent.

The improvement in the renal function is apparent, and shows the quick response to the preparatory treatment. The treatment was continued a few days longer and a third injection given, and this time the drug was excreted in twelve minutes. Suprapubic prostatectomy with removal of stones. Uneventful recovery.

The ideal result obtained in Case 5 is a marked contrast to the following case, in which the renal function, as indicated by this test, was much below par and called for preparatory treatment, just as the functional test called for it in the preceding case.

CASE 6.—Mr. K. Enlargement of the prostate.

Complaint: Difficulty with urination for four or five years. At times he is obliged to catheterize himself and this he has done with more or less regularity for over a year. Has had several attacks of complete retention. Two weeks prior to admission to the hospital his last attack of complete retention occurred, so that a physician has been catheterizing him three times daily. This physician, at the end of a week, was unable to introduce any instrument on account of pain, etc., and finally referred patient to the hospital for operation. The urine is foul and bloody and contains a large amount of pus. Injection of 6 mg. of phenolsulphonephthalein.

The first trace of drug appeared in forty minutes. At the end of two hours the urine was very faintly colored, and after dilution it was impossible to make a satisfactory reading.

We advised against operation and recommended "preparatory treatment," which the patient and his family refused to accept on account of the great suffering of the patient. As this was one of our early cases, and not relying entirely on the correct interpretation of this test, we performed a suprapubic prostatectomy, with the result that death followed on the third day from anuria.

CONCLUSIONS

1. The phenolsulphonephthalein test has apparently been of distinct value in a large series of cases, permitting or aiding in selecting cases suitable for operation.

2. It has been found to be of great value in cases where there were lesions of the lower urinary tract and the mixed specimens of urine used; it was equally valuable where the urines have been collected separately and where a consideration of the functional activity of one or both kidneys was to be considered.

3. The carrying out of this test repeatedly on one and the same patient at intervals of three or four days has shown an increase in the rapidity of elimination of the drug as well as an increase in the percentage of drug excreted, both in the first and second hours; and accompanying this, a distinct improvement of the patient clinically during the period of time that preparatory treatment was given. To us this seemed of paramount importance — in fact, no other functional test has ever given us the same opportunity to make similar comparisons.

4. Considering the ease and accuracy with which the test can be carried out — in connection with the ordinary modes of examination — it is by far the most adaptable as well as accurate of any of the functional tests in use at the present time.

DIAGNOSIS AND TREATMENT OF INFECTIONS OF THE RENAL PELVIS *

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The diagnosis of infection of the renal pelvis must depend almost entirely on the cystoscope and the microscope, as the symptomatology is not sufficiently classic for us to reach a definite opinion.

For convenience I have divided infections of the renal pelvis into three groups:

1. Catarrhal pyelitis.
2. Mild purulent pyelitis.
3. Purulent pyelitis.

The diagnosis of the first two groups must be made entirely by the cystoscope and the microscope, although we may suspect the condition from the symptoms.

The one cardinal symptom which stands out prominently is that of frequency of urination, particularly a nocturnal frequency. This may or may not be accompanied with pain, depending on the condition of the vesical mucosa. Another important phase of the condition is the history of frequent relapses of cystitis, which apparently responds to treatment, but in a short time after treatment is discontinued the bladder condition returns, the relapses being due to the bacteria-laden urine coming from the renal pelvis.

Patients may or may not have pain in the back; the pain may be localized on one side or both. The pain, however, is not a criterion of the kidney condition, as I have seen pain on one side when the infection was found to be on the other side. I have seen severe pelvic infections where the pain was localized anterior, around the umbilicus or over the bladder.

In purulent types, where there is a large amount of pus, the pain is more constant and there is usually a distinct febrile movement. The pain and fever are usually due to a blocking of the ureter, with distention and absorption. At this time the urine, if the condition is unilateral, is absolutely free from pus. I will report a case of unilateral infection wherein this feature was responsible for an erroneous diagnosis, as repeated examinations failed to show pus.

After it has been ascertained that the patient is suffering with a pyelitis, it is absolutely necessary to learn whether the condition is unilateral or bilateral. This is accomplished only with the aid of the ureteral catheter. At the same time it is essential to culture the specimen so as to reach a definite conclusion as to the bacterial element in the case.

I believe that the gonococcus is responsible to a marked degree as an exciting cause in these conditions; the inflammatory condition thus begun produces an excellent field for a further growth of other bacteria. I have

* Read at the Sixty-First Annual Meeting of the Illinois State Medical Society, at Aurora, May 16-18, 1911.

never been able to isolate the gonococcus from the kidney pelvis, yet I have examined thousands of specimens drawn directly from the pelvis. The large majority of these cases in the male gave a history of one or more gonorrheas with posterior urethra or bladder complications. The most common history in the female is that of a cystitis usually following a retention, due to any one of a number of causes, the retention relieved by the use of frequent catheterizations. Special surgical care must be exerted in the female when it is necessary to use the catheter frequently.

The most common forms of infection are: *B. coli communis,* staphylococcus, streptococcus and *B. tuberculosis,* or, as is very common, a mixed infection of any of the ones mentioned above. It is the exception and not the rule that I have found pure cultures; the infection is usually a mixed one. Therefore, it is vastly important in making a vaccine to use the patient's own bacteria for this purpose. Time will not allow me to go into a lengthy discussion of this exceedingly common and important subject, but I will give a short outline as to treatment of these cases, my experience being based on careful study and observation of a very large number of cases which have come under my observation during the last ten years.

A number of years ago I was treating the cases entirely by lavage of the renal pelvis and eradicated the infection in the majority of cases, yet there were a small number that would not clear up so that the urine would be entirely free from bacteria. During the last two or three years I have been using, in combination with lavage, injections of autogenous vaccines and my results have been nearly perfect. I have found that the cases all clear up much more rapidly this way than with either lavage alone or vaccines alone.

The lavage is carried out about once every five days by injection through the ureteral catheter with a solution of one of the silver salts. Silver nitrate solution is preferable, although I use argyrol, nargol, protargol, albargin and other forms of the drug. It is well when using silver nitrate to lavage the bladder with salt solution, leaving some in that viscus after the treatment to the kidney pelves; if this precaution is not taken the silver is apt to produce a marked frequency of urination with severe tenesmus.

The catarrhal and mild purulent forms will clear up very rapidly, surprisingly so in some of the cases. I have seen cases where from one to ten treatments were sufficient, the urine remaining quite bacteria free, the symptoms all disappearing. These cases, however, are the more difficult to diagnose, and unless especial care be taken the condition will be overlooked and will not be recognized until the condition becomes one of marked purulent type, whereas if recognized early the pelvic infection may be absolutely eradicated.

Just a moment or two of your time for a short synopsis of three or four cases:

CASE 1.—Mr. A., sent to me by Dr. Rininger of Seattle, Washington. No venereal history. Family history negative. Had history of pain in left kidney, which pain was more or less constant. Was operated upon for stone in the kidney. No stone found. Wound healed nicely. Was free from symptoms for a

period of one year. Began to have pain in the region of the left kidney, pain was more severe anterior in epigastrium. Had severe vomiting for several weeks. Physician made repeated examinations of the urine and found no pus. Patient was losing weight rapidly. Had marked febrile phenomenon; owing to the classic symptoms portrayed a tentative diagnosis of gastric ulcer was made.

When I first saw the patient he was brought to my office in a dazed condition, temperature 103.6°. History showed chills, fever and sweats. Cystoscopy showed marked edema and redness of the left orifice. Catheterization of the ureters showed normal urine from the right kidney, nothing from the left kidney. After irrigating through the catheter into the left pelvis I finally obtained some thick, pussy material; this primarily was too thick to run through the catheter or down the ureter, hence this condition with no pus in the urine. Culture showed pure *B. colon* infection. Patient had no more vomiting from the time of the first treatment. He did not remember having been at my office at the time of the first visit. He was given lavage twice a week with injection of vaccine once a week. He had twenty-seven (27) treatments, after which his urine became bacteria free. I have seen this patient within the last few days and examination shows the kidney urine to be absolutely normal.

Case 2.—Mrs. S., sent to me by Dr. Ferguson. She had had two stones removed from the pelvis of the left kidney, by Dr. Ferguson. A stone had been removed from the same pelvis by Dr. Mayo eight months prior.

Catheterized specimens showed marked infection of the pelvis of the left side. This examination was made prior to Dr. Ferguson's operation. Four months after the operation she consulted me and examination showed pure staphylococcus infection of the left kidney pelvis. Vaccines were made. For about two months the patient had been having daily chills with rise of temperature, and evidences of a cystitis. For years she had not been free from pain in her back, this was not even relieved by her operations.

After one lavage and one injection of 400,000,000 dead staphylococci her symptoms absolutely disappeared. She is still under my care and after a few more treatments I hope to be able to discharge her cured. An *x*-ray shows no stone in the kidney. Since reading this paper the infection has entirely disappeared and the patient has recovered. Urine absolutely bacteria free.

Case 3.—Mr. F., sent to me by Dr. Schwab. Had a history of an enteric fever. Kidney trouble began a short time later with the presence of a large amount of pus in the urine, chills, fever and sweats. Internal treatment failed to relieve him. Examination showed a large tender kidney on the left side. Normal kidney on the right side. Cystoscopic examination showed normal bladder and apparently normal ureteric orifices. Catheterization of the ureters was easily accomplished, normal urine from right side. There was nothing seen coming through the catheter on the left side. Irrigation with sterile water brought, through the catheter, thick, ropey material which was almost pure pus. Culture showed pure staphylococcic infection.

Owing to a marked inflammatory condition of the ureter I have not since been able to pass a catheter into the pelvis of the left kidney, due to the marked edema of the mucosa. I have been giving him 400,000,000 dead staphylococci every five days. His constitutional symptoms have all disappeared and he is distinctly better. There is still a large amount of pus, so large in fact that I can not say whether or not it is less than formerly. I hope to be able to perform a lavage soon and I feel confident that with the combination treatment I can get him well without a nephrotomy.

I have seen such gratifying results from this form of treatment that I am sure that it should be given a fair trial in all septic conditions involving the kidney and renal pelvis.

7 West Madison Street.

THE ANESTHETIST AS A MEMBER OF THE SURGICAL TEAM *

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There has grown up around modern surgery the necessity of having a number of trained assistants, each having certain duties to perform, at a given time, following a regular routine in carrying out the technic of a given operation.

This corps of assistants has been aptly termed "the team" — team in the sense it is used in baseball — men trained to work together, each in his own place. It is interesting to take a rapid review of the development of the team, each one being added as the developments of surgery demanded them.

Back in the beginning of surgery, the man then occupying the place of the present day anesthetist was chosen because of his brawn rather than brain, and there was usually three or four of him. Having no anesthetics, they simply held the victim when it was deemed necessary to do surgery in order to save life. Their idea of saving life would be classed as emergency work to-day, for, except in rare instances, nothing was done unless the patient was in immediate danger of death as the result of injury or hemorrhage.

It is worthy of note, in passing, that a man's reputation as a surgeon, at that time, was largely dependent on the rapidity of his operation; because then, as now, patients insisted that the pain should be of as short duration as possible.

At this stage of surgery, there was little or no attempt at team work, but after the discovery of anesthetics, and their use generally adopted in surgery, the operation began to be a little more elaborate, which necessitated that the assistant become familiar with what was to be done. Here was the beginning of the team.

Then in a few years came Lord Lister, Pasteur and their followers, who gave us antiseptic, and, later, aseptic surgery, which required a great amount of sterilization to be done. This in turn required the addition of an operating room nurse, and her assistants.

Then Christian Fenger and his followers began to teach and demand that surgery be done with due regard to the pathology of structures to be removed. Fenger and his first followers, many of them, were their own pathologists. As business pressed, it was turned over to laboratories, but the discovery and perfection of freezing and immediate diagnosis, while the surgeon waits, with an open incision, gave the pathologist his place on the team, and required his presence in, or near, the operating room, during the operation.

During all this progress, there was little or no attention paid to anesthesia, and what study was given to it went mostly to discover the safest

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kind of anesthetic, not in its after-effects, but in immediate effects; in other words, the kind that would be the most apt to get the patient off the table alive, with little or no regard to the amount given, and the method, and skill, of giving.

It is strange that the most important member of the team, the very foundation of surgery, should have been so long neglected. Some, at first thought, may take exception to this statement; but what matters your elaborate technic, your perfect sterilization, or your beautifully stained slides, if no one had surgery done?

No one would tolerate modern surgery, and stand the pain, without anesthesia; and if anesthesia were banished (if that were possible), no surgery would be done, except that in which the pain of the operation would be deemed less than the long suffering resulting from doing without it. Even then, only the courageous would submit.

The real comprehensive study of anesthesia began about 1905. It is interesting to note that there are indexed in the library of the Physicians' Club thirteen articles on anesthesia for 1906, fourteen for 1907, fifty-seven for 1908, fifty-five for 1909, and forty-one for 1910.

In 1905, Drs. Bevan and Favill[1] reported a case in which they had difficulty in making a diagnosis, in a post-operative trouble, notwithstanding the fact that they had in consultation four of the most eminent men of the profession in Chicago. The cause of death was in as much doubt, after the post-mortem, by an equally eminent pathologist. Not until they went through the literature, as reported in that classical article, was the fact established that it was a case of delayed chloroform poisoning.

This only illustrates the lack of attention paid to anesthesia prior to this time, for they discovered twenty-seven cases of delayed chloroform poisoning in the literature, with numerous experiments on animals. Surgeons had read, and not realized; heard, and not heeded. Chloroform had been the anesthetic used in all of the twenty-eight cases of death. However, ether produces a limited amount of necrosis, as shown in the experiments on animals.

The experiments of Offergeld and Benno Müller on animals were reported in this article. Müller made fifty experiments with the usual anesthetics.[2] His conclusions were:

First: Anesthesia with chloroform, chloral hydrate, bromethel and chlorethel, ether, and mixture of these, always produced changes in the internal organs which appear as beginning fatty changes.

Second: Fatty changes occur in the epithelium of the respiratory tract.

Third: Fatty changes in degree and extent depend on the time and number of anesthesias.

Fourth: The power of the various anesthetics to produce fatty changes is in direct proportion to their anesthetic power.

1. Jour. Am. Med. Assn., Sept. 2, 1905, p. 691.
2. Jour. Am. Med. Assn., Sept. 2, 1905, p. 694.

Fifth: The fatty changes usually disappear shortly after the anesthesia. If a second anesthesia, however, is given before the fatty changes of the first have been recovered from, the effects of the second are enhanced, and the cell becomes necrotic. It makes little difference when the second anesthesia is given, the fatty changes of the second are twice as severe as the first.

Sixth: The anesthetic continues to produce fatty changes as long as it is present in the blood. The fatty changes cannot go on to restoration to normal, until the blood has rid itself of the last vestige of the drug.

Seventh: It is hazardous to give a second anesthesia within three days of the first, and the anesthesia should be as short as possible.

Eighth: Pneumonia occurs frequently after ether and ether mixtures. Because of a possible pneumonia, after a first ether anesthesia, one should choose chloroform, for a second anesthesia.

Ninth: Each anesthesia produces, after long use, an increase in the mucus secretion. One finds, after each anesthesia, small areas in the lungs filled with mucus (not an infected pneumonia), which very soon disappear, but which are greatly increased by a second anesthesia.

Tenth: Chloral hydrate forms chloroform in the system.

Eleventh: The mixed anesthetics have no properties of prevention of fatty changes in the internal organs.

Twelfth: Every anesthesia produces fatty changes, in the walls of the vessels of the brain, and in the ganglion cells, up to a certain stage, and in the other internal organs.

Offergeld's conclusions[3] were about the same as Müller's, except in one particular. In Offergeld's eleventh series, the conclusion is reached, that the anesthesia produced by chloroform and oxygen does produce degenerative changes in the liver and kidneys, but only to a limited degree, and in a few days a complete recovery follows.

In the literature that I have access to, I find reported ten cases of death from delayed chloroform poisoning, since 1906. In all these, the symptom complex is almost identical with the twenty-seven reported from the literature, by Bevan and Favill, as well as the one reported by them.

The symptom complex is, mental distress, vomiting, restlessness, delirium, convulsion, coma, Cheyne-Stokes respiration, cyanosis, icterus in varying degrees, terminating in death from forty-eight to 150 hours after the anesthesia.

The post-mortem findings in all the cases are general fatty degeneration, but especially marked in the liver, kidneys and heart muscles.

In 1909 J. W. Bovée[4] reported urinary findings in thirty-two anesthesias, sixteen of chloroform and sixteen of ether. The urine was collected for the twenty-four hours before the operation. The bladder was emptied just as the anesthesia was to begin, and a permanent catheter

3. Jour. Am. Med. Assn., Sept. 2, 1905, p. 695.
4. Am. Jour. of Obst., June, 1909, p. 1004.

was placed in the urethra, and specimens were taken every fifteen minutes during, and following, the operation, up to one and one-half hours.

Then specimens were collected for the first, and the second, twenty-four hours, following the operation. These six specimens taken during, and shortly following, the operation were each examined and compared with the twenty-four hour specimen before, as well as the first and second twenty-four hour specimens following the operation. His conclusions are:

First: Rate of excretion markedly lessened by chloroform, and ether.

Second: Such diminution greater from chloroform, than ether.

Third: That while chloroform produces diminution of urea, it maintains nearly a normal ratio to the amount secreted. Ether produces greater proportionate lessening of urea, than urine.

Fourth: Either of these anesthetics skilfully given has little effect on casts or albumin.

Fifth: Trendelenburg's position retards the rapidity of the urinary output.

Drs. Hamburger and Ewing, in an article published in 1908, entitled "The Blood Changes Incident to Surgical Anesthesia, with Special Reference to those Induced by Nitrous Oxid Gas. A Clinical and Experimental Study," [5] give their conclusions as follows:

Their examinations of the blood were made at a stated time before the anesthesia, and just before the anesthesia, during the anesthesia, and at a stated time following the anesthesia. Their data were obtained from the study of sixty-eight clinical cases, and forty-two experiments with dogs. Their comparisons of the three anesthetics — nitrous oxid gas, ether, and chloroform — are:

First: Nitrous oxid gas causes no permanent changes of any significance.

Second: Ether causes more harmful changes (slight anemia), with marked decrease in coagulation time.

Third: Chloroform causes the most harmful results — hemolysis, and distinct anemia.

All of which demonstrates the fact, that ether or chloroform has a bad effect on the secretory organs, especially the liver and kidneys, and the more given, the greater the effect; therefore, the great need of rapid operations and a trained anesthetist, who will use as little anesthetic as possible to maintain the proper degree of relaxation needed, for each stage of the operation.

As far back as 1892, Robert T. Morris noted the advantage of quick operations, and was able at that time to do an appendectomy in twenty minutes. His "Fourth or Physiologic Era in Surgery," [6] was published in 1908. His new principles can be best stated in his own words:

"We are to conserve the natural resistance of the patient, and turn him over to his phagocytes and antibodies, as helpfully as we can. We are to leave the patient in his best condition for manufacturing phago-

5. Jour. Am. Med. Assn., Nov. 7, 1908, p. 1586.
6. Jour. Am. Med. Assn., Aug. 22, 1908, p. 644.

cytes, opsonins, and other antibodies, *through the shortest possible method of anesthesia*, and the least degree of surgery, which will suffice to turn the tide of battle between bacterium and leukocytes."

During the working out of this new principle, the dexterity of the anesthetist began to be considered. He was generally very bad, but still hopeful, and was put in training to prepare himself to qualify as a member of the team.

In December, 1907, Joseph D. Bryant of New York, in an article entitled "Some Unclassified Dangers in Anesthesia,"[7] makes this remark: "The comparatively recent, though limited, introduction of skilled anesthetists into the professional activities of this country, has established a desideratum, of most satisfactory and beneficent nature, to all immediately concerned in operative practice."

The kind of anesthetic to be used, and the method of using, has been much and warmly discussed during the past five years; but since the report of 14,000 cases from the Mayo clinic,[8] ether has been generally accepted as the safest; and when ether alone is used, the so-called open, or drop, method gives the best results, and is by far the safest. Its safety over the old, closed method is no doubt due to the freer mixture of oxygen, as pointed out by Offergeld, that oxygen mixed with an anesthetic reduces the danger of fatty changes, and it would be wise to have a better ventilation in our operating rooms.

This method had barely been established when Bevan, Teter, and others, began the use of nitrous oxid gas, for short operations, especially in cases where the kidneys were damaged to such an extent that the after-effects of ether would be dangerous if not fatal. Then Teter further improved his apparatus for giving nitrous oxid gas, in a way to enable the anesthetist to mix a known percentage of oxygen with the gas, and thereby to maintain a safe and proficient anesthesia, up to three, or three and one-half hours.[9]

The objections to the use of nitrous oxid gas are:

First: Many robust or alcoholic patients cannot be relaxed.

Second: The great trouble of finding those proficient in giving it. And,

Third: Greatest of all, the great expense.

However, a later and very recent improvement has been made in the apparatus of Teter, by means of which the patient rebreathes the nitrous oxid gas, the current of gas passing back and forth through a warming coil and over a jar of ether, with stopcocks so arranged that the anesthetist may give gas impregnated with 0.4 of 1 per cent., with 4 per cent., 10 per cent. or 30 per cent. of ether.

He may so arrange the stop cocks, that the patient will get only the gas, or the gas mixed with a known percentage of oxygen. This arrangement has, to a great extent, removed the first objection to the use of nitrous oxid gas. Any patient, no matter how difficult, can be relaxed

7. Med. Rec., Dec. 28, 1907.
8. Surg., Gyn. and Obst., Dec., 1906, p. 795.
9. Jour. Am. Med. Assn., Aug. 7, 1909, p. 448.

by five to ten minutes' use of the ether. The narcotic effect of ether is very powerful by this method because of the complete vaporization of the ether by the heat in the warming coil.

Although the effect is powerful and quick, the recovery is equally prompt. The blood seems able to quickly rid itself of the ether in this state. After the patient has been sufficiently relaxed, the ether may be stopped and the anesthesia completed with nitrous oxid gas. This can be done without removing the mask from the patient's face.

The rebreathing of the gas has greatly reduced the expense, even when the ordinary commercial cylinders are used. However, by the expenditure of a few hundred dollars, an apparatus to manufacture the gas may be installed in any hospital in a convenient space, and the gas piped to the operating rooms.

During a recent visit to Cleveland, Ohio, I saw such an apparatus in operation at the Lakeside Hospital, also one at St. Luke's Hospital, and there is one in process of construction for St. Francis Hospital, Peoria.

While talking to Dr. George Crile of the use of nitrous oxid gas in surgery, the Doctor made a very significant remark. I asked him how he liked the gas. His answer was, "I don't like it, but the patients do." He further qualified this by stating that "A surgeon must accustom himself to operate with gas because the complete relaxation is not achieved as it is with ether, but it is much safer, and I use it as a routine practice." In fact, it seemed the anesthetic of choice in the Lakeside and St. Luke's Hospitals.

Although gas is not free from dangers, it has less dangers than any other anesthetic, is the conclusion of Bloodgood in *Progressive Medicine* for December,[10] and of Haggard in his recent report as a member of the Committee on Anesthesia of the American Medical Association.

Bloodgood and Haggard[11] both touch on the rebreathing of nitrous oxid gas.

Bloodgood refers to some laboratory experiments by Henderson. The experiments of Henderson[12] show that the blood has a normal residual amount of carbon dioxid gas of about 4 per cent.

The pain, or whatever produces shock, causes rapid breathing, and thus an over-oxidation, and reduces this normal carbon dioxid of the blood, which is the normal stimulant of the cardo-inhibitory centers. With this stimulant removed, the muscular tone of the venous walls is lessened, and a reduction of venous tone and not arterial is the primary cause of the failure of the circulation in shock.

Haggard[11] refers to the clinical experience of Gatch, which seems to confirm the conclusions of Henderson, and he believes the rebreathing to a limited extent will maintain, or possibly increase, the normal carbon dioxid of the blood, and thereby increase the blood pressure and act as a preventive of shock.

The ideal for which an anesthetist must strive is to give as little anesthetic as possible to maintain the degree of relaxation desired by the

10. Prog. Med., December, 1911, xii, 176.
11. Jour. Am. Med. Assn., Dec. 24, 1910, p. 2225.
12. Bulletin of Johns Hopkins Hospital, Aug. 10, 1910, xxi, 235.

surgeon, and as some structures are much more sensitive than others, it is obviously unnecessary to maintain the same degree of relaxation while those parts not sensitive are being handled, as was maintained during the handling of the sensitive parts.

It is important, then, for the anesthetist to know which parts are sensitive, and which are not, and in what order they are to be worked on, by the particular surgeon for whom he is giving the anesthetic, so that an anesthetist must have a general working knowledge of the technic of each operation.

As no two surgeons follow the same identical technic in doing the same operation, it is evident that the best results can be obtained by a long training of the anesthetist with one surgeon, and so he becomes a member of the team.

Not so many years ago, it was considered bad practice for the anesthetist to watch the operation; in fact, some surgeons went so far as to arrange sheets so that he could not see, and many persons were chosen to be trained anesthetists, because of their lack of interest in surgery. This is surely not scientific and cannot give the best results.

Many have considered that a great number of cases makes such a person an authority, but I suspect that a good, bright office boy, who assisted in 12,000 or 15,000 operations, would be something of an authority on surgery, and I do not believe that the surgeons, who recommend these lay persons for anesthetists, would advise the making of a surgeon in the way to which I refer.

If the anesthetist makes any effort to approach the ideal, it is not only necessary that he should watch the operation, but he must also keep track of its different stages, and be just a little ahead of the surgeon, so that the patient will be ready for the rehandling of the sensitive parts by the time the surgeon gets to them.

Take for illustration, a posterior gastro-enterostomy. The patient must be well relaxed to make the incision through the skin dividing the different layers and getting the stomach and bowel up into position to make the anastomosis. While the anastomosis is being made, very little anesthetic is required. It is quite remarkable how little can be given to maintain the narcosis, but there is surely trouble ahead, unless the patient is well relaxed by the time the surgeon is ready to drop the stomach and bowel back into the abdomen and prepare to close the incision, which involves the handling of the peritoneum and skin.

To show the result of training, I might state that I have given 1,028 anesthesias during the last three years. Most of these have been ether anesthesias, by the open method; others have been mixture of gas and ether; and a very few, where we have used ether to produce the narcosis, and chloroform held on a sponge to maintain the narcosis.

Of these 1,028, I have a complete record of 758. The first 100, in which I gave ether, by the open, or drop method, I gave on an average 5.58 ounces to each patient. The last 100, given in the same way, I averaged 4.33 ounces to the patient, a reduction of 1¼ ounces to the patient.

I might state, however, that when the first 100 was taken, it included all operations done in Dr. Clifford U. Collins' clinic, but during the last 100 we had got to using nitrous oxid gas for the short operations, which would tend to bring up the average a little in the last hundred cases. In all these cases the ether was measured, and not weighed, and as there are about 10 ounces by measure in a one-half pound can of ether, this would also tend to increase the average over those who calculate ether by weight.

SUMMARY

First: Any anesthetic has its dangers, and the greater the amount used, the greater the danger; therefore, short operations and trained anesthetists are needed.

Second: The anesthetist should have a general working knowledge of the technic of the particular surgeon with whom he is working.

Third: The anesthetist should be a graduate of medicine, familiar with surgical conditions, and having a knowledge of sensitive and non-sensitive structures.

Fourth: The anesthetist should follow each stage of the operation as it proceeds, and vary the anesthetic accordingly.

CLINICAL MANIFESTATIONS OF ARTERIOSCLEROSIS *

A. MERRILL MILLER, M.D.

DANVILLE, ILL.

Arteriosclerosis had not, it seems, come to occupy a place of prominence in the nomenclature of mortuary reports. Its conception as an independent affection has but recently occupied the attention of medical authors, although a vast and rapidly accumulating literature attests an awakened general interest among physicians. There is little doubt that its existence is more frequently overlooked in naming the cause of death than of most pathogenic lesions. The vague indefinite expressions of old age, heart failure, and melancholia must often be without a sound pathology unless this general disease of the vascular system is responsible for death. The swift and terrible consequence of sclerosis often gives scant opportunity for investigation.

Recently the introduction into clinical use of the various forms of blood-pressure apparatus has thrown light on a field heretofore unexplored, and clinical observation has given way to more exact clinical methods, thanks to the physiological laboratory. The fundamental importance of physiologic knowledge in clinical methods is justified when the distinction between internal tension and arterial thickening be based on reasonable standards of comparison in certain forms of vascular disease. In other words, an instrument for determining blood-pressure must occupy the

* Read before the Vermilion County Medical Society, Sept. 11, 1911.

same place of importance as a clinical thermometer in fever. One's thermal sense is as unreliable as a palpating finger, and blood-pressure determination with *records* are considered an essential feature in an accurate comprehensive chart.

There is a feature of high blood-pressure not always apparent; arterial changes are not always evident, e. g., they may be localized in the brain, kidney, uterus, heart, etc., without general evidence of peripheral thickening; again the most palpable evidence of sclerosis may exist without symptoms.

A generation ago clinicians believed almost universally that high blood-pressure was associated with some kidney lesion, and in the negative evidence furnished by the laboratory they still maintained high blood-pressure to be a "pre-albuminuric stage" and calmly awaited the occurrence of albumin. Thanks to Sutton and Gull this narrow conception of disease was lifted from its resting place and made a part of general arterial disease.

The insidious outset of symptoms arising from sclerosis or high tension is likely to present a confusing picture before one is able to hazard a diagnosis; this is especially so since the symptoms are general, rather than specific. To prevent harmful organic changes, with loss of nutrition and subsequent atrophy, we must recognize the presence of *hypertension* at an early date. Particularly is this true since etiologic factors are purely conjectures. The time-honored, long-copied orthodox causes are untenable in view of recent findings in arteries of Egyptian mummies, due to the splendid state of preservation of many specimens. Abundant evidence of arterial disease is present. And the very factors which we have regarded as causes are conspicuous by their absence, e. g., syphilis did not exist in Egypt; they were at least temperate, if not total abstainers, in the use of alcohol; that physical effort was not a characteristic of the Egyptian may be inferred from the historical evidence of slaves. Thus, you see, our most cherished, oft quoted conceits have been snatched from us and thrown into the confused heap of etiologic uncertainties. We do know, however, that men are more affected than women, in the proportion of three to one.

Concerning symptoms, we must be prepared to admit a wide latitude, and interpret each group individually, as it concerns various organs or systems. Apparently contradictory evidence may exist in the same individual. For example, extreme degeneration of larger superficial vessels may exist without marked influence on blood-pressure, while disease of the smaller arteries of the central nervous system may not only increase tension, but render him a very likely subject for apoplexy. There is a growing tendency to attribute transient nervous symptoms to this condition. Thus, you see the determination of a hypertension will, at least, direct our attention to the brain in the absence of causative factors in the kidney, heart, or arteries.

High tension, as measured and recorded by a recognized instrument, is only a factor in the complete general picture, and then only when *continued*. This altered function of the circulatory system frequently precedes secondary changes.

These secondary changes in the heart usually mean a fall in pressure which must *not* be interpreted as evidence of improvement. The gradual closure and disease of the coronaries has enfeebled the heart muscle till it no longer possesses the strength for a powerful contraction.

The presence of an enlarged left heart, tortuous and thickened superficial arteries, scant urine containing a trace of albumin, may constitute the physical findings. These are seldom in association. Add to this transient monoplegia, dizziness, headache, impaired memory with aphasia and the clinical picture becomes very apparent. It is in cases having a neurologic tendency that these symptoms are prominent, but the nervous type of this disease does not constitute its sole manifestation.

The revised pathology of various organs and systems must recognize its importance in a special way. Kidney, cerebral and cardiac symptoms with hypertension must, at an earlier or later date, accompany degeneration of arterial walls and produce structural alteration, sometimes called "secondaries."

Second only to the recognition of the disease, come the methods of relief. The damage already done to vessel walls cannot be cured. The reduction of blood-pressure is the essential feature of treatment. If not an actual reduction as recorded by the pressure gauge, we are called on to prevent an increase, and interdict all habits exciting an acute exacerbation. There is probably no grave disease in which measures non-medical mean so much and medicine so little as the reduction and control of hypertension. As medical directors, we should be constantly watchmen, therapeutists only where necessity arises. We must have complete intelligent cooperation and surrender from the patient; since most of these cases are in the better families, we may expect such intelligence.

First, avoid worry and hurry. This means a far-reaching control over your patient. Men of vigorous mental habits and accustomed to large enterprises will find this an irksome task, and may decry the apparent inactivity of his medical superintendent. In these cases, medical shopping is a fixed habit.

In the last analysis, alcohol, tobacco and coffee raise blood-pressure, and most individuals have some personal sacrifice to make, for the sense of well being. Unfettered indulgence is not compatible with arterial disease. Dietetic restrictions act more favorably in this than in most other disease in which we, with much gravity, prescribe a diet list. Simple foods in *moderation* spell "comfort" for the overcharged arterial system, and not a few sudden deaths have followed disobedience of this rule. It may appear to be the advent of a second childhood to prescribe a mild, agreeable occupation and simple diet to an active mind, but no rules of therapeutics approach them in control of hypertension.

Being physicians, the laity at least associate the giving of drugs as one of the time honored conventions. They expect "something to take." The iodin salts have from time immemorial been the sheet anchor. The coincidence of relief of hypertension and tertiary syphilis when giving iodids may account for the reversed reasoning in seeking a common cause. To prove beneficial they must be given continuously over weeks and

months. "A therapeutic victory is a daughter of time." Recently, the nitrites, especially of soda, have found favor and will control an excessive elevation of pressure, but this only when associated with a simple manner of living.

508 The Temple.

OBSERVATIONS ON THE ENGLEWOOD TYPHOID FEVER EPIDEMIC *

A. G. Bosler, M.D.
CHICAGO

An epidemic of typhoid fever is always interesting to the physician, especially so to the sanitarian and health officer, and makes itself more than interesting to the victims. This in itself would be ample justification for reporting the very recent epidemic in Englewood, but the lessons to be learned and the fact that we have had very little typhoid in this vicinity within the past twenty years makes the reporting of observations on this epidemic of paramount importance.

The first known case of this epidemic occurred in the practice of Dr. G. J. Hagens, who happened to be out of the city and I was called to see the patient. This was on June 8, 1911. The symptoms were those of an accute rheumatic affair and the case was at first thought to be such. The true nature was suspected, a Widal sent in on the sixth day and the case reported as typhoid. I could have reported this case as a strongly suspected case of typhoid several days previous, but not wishing to unnecessarily alarm the family, inasmuch as their regular physician was out of town, I deferred reporting same until a positive Widal was obtained. The reporting of this first case was a very important part in checking the epidemic, which in a short space of time assumed alarming proportions.

To the credit of our efficient health department let me say that within two days after reporting this case the milk dealer, who had not been pasteurizing his milk, was ordered to do so. His place was closed for a few days, pasteurization was done and he resumed business. Within the next ten days I reported several more typhoids in my immediate neighborhood, all of whom were taking milk from this dealer. He was promptly closed and a vigorous investigation instituted by our department of health.

I cannot too highly commend the work done by the health officers in tracing the source of the infection and adopting means to prevent further dissemination. To their efficient work can be credited the stamping out of what was perhaps the worst epidemic of typhoid fever Englewood has ever known; some idea of which may be obtained when I state that within a stone's throw of my home we had twenty-two cases and in all some eighty cases, with eight deaths. What might have occurred had this milk dealer been allowed to sell milk even a few days longer will never be known.

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* Read at the opening meeting of the Englewood Branch of the Chicago Medical Society, Oct. 3, 1911.

The source of the infection was found to be milk from the now extinct Yale Dairy, 710 West Sixty-First Street. This was operated by two Hollanders, Ostema & Rozema, and they received their milk from the Borsema farm, One Hundred and Eleventh Street and Kedzie Avenue. The health department made examinations of the excreta of all members of the Yale Dairy Company and no typhoid was found, neither did any of them give a positive Widal. They then examined all persons connected with the farm and found typhoid germs in the urine of Rosie Pell, grand-daughter of Borsema. Rosie also gave a positive Widal. She had been washing the milk cans. Further investigation proved that Rosie had had typhoid some three years ago; that she was a typhoid carrier of the intermittent type, having a chronic cystitis. In this connection it may be well to state that three years ago an epidemic of typhoid in West Pullman was traced to this same farm at which time Rosie had the disease. In that epidemic, as in this, the milk man's route could be traced by the cases of typhoid.

The first examination of Rosie was made on June 27, 1911, with positive results. She was taken from the farm and for a time placed in the county hospital. Urotropin was administered and examinations made during the month of July were negative. On August 1, urotropin was discontinued and on August 5, she was again found to be positive. She was taken in hand by the state officers, placed on vaccine treatments, and up to date of September 19, she has been negative. During this time she has been examined once a week.

While the work done by our health department has been thorough and shows conclusively that the infection originated on the Borsema farm the state officers appear to think otherwise; they believing that the infection occurred at the dairy. That the state is in error seems very clear, as the facts are so convincing that one wonders that there could be any doubt. The state believes that the first case originated in the Yale Dairy, that the milk was there infected and that Rosie had nothing to do with it, arguing that if she was a carrier in June, 1911, she has been a carrier ever since she had typhoid three years ago. Undoubtedly she has been a carrier ever since having the disease but of the intermittent type. During these three years part of the time she has been in Wisconsin, part of the time she is positive and at other times free from germs, part of the time she washed milk cans and at others not and the following facts will bear out the conclusion that she washed cans while she was positive and that the cans were washed in such a way that they became infected.

To show that the infection did not originate in the Yale Dairy let me say that the first case of typhoid connected with the dairy, Mrs. Ostema, was taken sick on June 24, and that on June 29, Mr. Rozema was taken ill. The first case from Yale milk was taken ill on or before June 8; also before June 24 I personally had three or four other cases, to say nothing of the cases of other physicians. The records will show many cases antedating those of members of the Yale Dairy. Further the examinations of excreta of members of the Yale Dairy previous to June 20, showed them all negative, while the examinations of those con-

nected with the farm showed that Rosie was a carrier. I never heard of an epidemic of typhoid traced more directly, and these facts should prove beyond any doubt that the infection originated with milk contaminated by Rosie.

The health department records show seventy-nine cases, sixty-three of which had milk from the Yale Dairy. I have obtained the records of seventy-eight cases, the majority of which were treated by Drs. R. L. Van Dellen, G. J. Hagens and myself. I desire to give due credit and to express my thanks and appreciation to Drs. Hagens and Van Dellen, also to the other physicians who so kindly gave me information regarding their cases; also to Dr. H. Strass, senior intern of the Englewood Hospital, to whom I am greatly indebted for information regarding the hospital cases.

Altogether I have the records of seventy-eight cases. Careful investigation proves that sixty-eight of these had milk from the Yale Dairy (87 per cent.). Sixty-eight of them gave positive Widals (87 + per cent.). This percentage would have been higher but for the fact that in many cases only one Widal was sent in, and in at least one case no Widal was made. In only one case was a Widal persistently negative. Rose spots were present in seventy-five cases or 96 + per cent. Enlarged spleen in fifty-eight cases or 73 per cent. Relapses occurred in five, or 6+ per cent. There were fifty-three adults, seven of whom died, giving a mortality rate of 13.2 per cent. There were twenty-five children under 16 years, one dying, a rate of 4 per cent. Thirty-one were treated in the hospital, with four deaths, a rate of 12.9 per cent. Forty-seven were treated at home with four deaths, a rate of 8.5 + per cent. Of the total cases eight died, giving a mortality rate of 10.2 per cent. Hemorrhages occurred in nine cases, all adults, or 11.5 per cent., three of the nine proving fatal, or 33.3 per cent. One hemorrhage was as severe as the worst post-partum I have ever seen. One case had had a normal temperature for over fourteen days, left the hospital and then had a hemorrhage. Two had perforations, or 2.5 per cent. One was operated on within twelve hours by Dr. C. F. Weir. One perforation was found which was closed and the patient recovered. The other perforation, who was the first case of the epidemic, had suffered a relapse. He was in a semi-unconscious condition and the usual symptoms of perforation were lacking and when seen by the attending physician was in a condition of collapse. He died. There were thirty-seven males and forty-one females, three of whom were pregnant at the time of contracting the disease. One aborted at four months. One was about seven months along and has since been delivered of a healthy child. A Widal was made of this baby and proved to be negative. The other case was six months along and is now progressing nicely to full term. The youngest patient was 15 months and recovered, the oldest was 64 years and died with heart complications.

Two nurses contracted the disease while caring for their patients. Both cases occurred at homes. One nurse, while giving an enema, had the misfortune of having bowel contents thrown in her face and even mouth. She promptly came down with the disease. Of over thirty cases

treated in the Englewood Hospital during the epidemic, and a dozen or so since, not a nurse nor intern has contracted the disease. This is worthy of special mention and speaks very highly for the efficient and careful management.

The lessons to be learned from this epidemic are:

1. The great importance of reporting any isolated case of typhoid fever and the prompt investigation by the health authorities. The case at hand may be the forerunner of an epidemic. The neglect on the part of the physician of reporting typhoid is a crime and should carry a heavy penalty. Read the following extract from a letter received this morning from the health officer of Salem, Ohio, and you will agree with me that the physician who failed to report the case because he would injure his patient's business was nothing short of a criminal.

Extract from letter of Dr. E. J. Schwartz, Health Officer, Salem, Ohio.:

Salem is a city of less than 10,000. Our typhoid cases are usually sporadic, as our public water-supply is considered by state tests to be second to none. In late summer and fall of 1909 I found I was having two or three cases per family, and other doctors likewise, of conditions very much resembling typhoid. For eight to ten days was receiving reports of six and seven a day until we had sixty-six cases. In attempting to find the origin, I was puzzled at first, as all the cases were in one section of the city. Investigating in my families, I found they were all buying from one dairyman, which led me to inquire into the other cases, to find that fifty-eight of sixty-six cases were using milk from this dairyman. I proceeded to the dairy and found the dairyman's wife sick with what I pronounced typhoid, but her attending physician had called it malaria. He afterward admitted he had purposely kept it quiet to protect the man's business.

I ordered the dairyman to cease business at once until the matter could be thoroughly investigated, with the result that we had no more typhoid.

One feature about the investigation that puzzled me was why families using bottled milk became infected, while those using milk from large cans did not.

I had the well water on the farm analyzed and found the source of our trouble. On inquiry I found that they cleaned both bottles and cans by steam, but that glass bottles held heat so long that they immersed them in cold water to cool. Thus I had the solution why the bottles became infected while the cans did not, for they immediately filled the bottles and enough germ-laden water adhered to the bottles to quickly infect fresh milk.

2. A stricter watch should be kept on those recovering from the disease and if any carriers are found they should be considered a menace to the community, should be placed where they cannot do harm and treated. This may appear a little far fetched, but let me state that ten years ago, while teaching preventive medicine, I advocated and held that the proper time to lift the quarantine in diphtheria cases was when the throat was free from germs. The idea was ridiculed by some; others, more kindly disposed, said it was impracticable. To-day this is our guiding rule. I expect to hear the same comments on this suggestion, but the wisdom and absolute necessity of greater care in patients recovering from typhoid stands out as a crying need, so vividly portrayed by this epidemic, and the quicker we adopt means to ascertain carriers and treat them as such the quicker will we stop epidemics of this disease. Personally I have been in the habit of putting my typhoids on urotropin and

keeping them on it for over a month after recovery, also of warning them of the danger of infecting others.

These two lessons stand out preeminently in this epidemic. We have paid the price with eight lives and the suffering of scores. The question is, will we collect the reward — *have we learned the lessons?*

TABULATED RECORD OF ENGLEWOOD TYPHOID EPIDEMIC

Total cases	78		
Milk from Yale Dairy	68;	87	+ per cent.
Widal's positive	68;	87	+ per cent.
Rose spots	75;	96	+ per cent.
Enlarged spleen	57;	73	per cent.
Hemorrhages (all adults, 3 fatal)	9;	11.5	per cent.
Perforations (1 operated on and recovered)	2;	2.6	per cent.
Relapse	5;	6	+ per cent.
Adults (7 died, rate 13.2 per cent.)	53		
Children under 16 (1 died, rate 4 per cent.)	25		
Males	37		
Females (3 pregnant, 1 aborted)	41		
Treated in hospital (4 died, rate 12.9 + per cent.)	31		
Treated at home (4 died, rate 8.5 + per cent.)	47		
Total deaths (rate 10.2 per cent.)	8		
Nurses contracting disease from patients (both at home)	2		

A NEW TONSIL HEMOSTAT: ITS ROUTINE USE IN TONSILLECTOMY

A. M. Corwin, M.D.
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Hemorrhage during and after tonsil operations has been a potent source of danger, and therefore of fear in the mind of the average doctor. Such hemorrhage has been frequent enough after partial removal by a tonsillotome or other instruments, as practiced in former times and as still practiced, particularly in Europe. This fear has bred in physicians undue conservatism, to the harm of the people, for hundreds of patients have been treated by local or internal medication, or not treated at all, where removal of the offending glands was clearly indicated to prevent local regional or systemic trouble.

Complete removal, excision, enucleation, tonsillectomy, as distinguished from tonsillotomy, is a very old procedure, dating from the first century, but it never became popular, very likely because of the bleeding involved, so awkward to control, and because there was greater chance of serious infection prior to the usages of modern asepsis. Such infections are uncomfortably occasional even with the most approved methods of to-day. America has revived the operation of enucleation and is perfecting its technic under the leadership of laryngologists who have recently pointed out the numerous definite and urgent indications for excision of the tonsil with its capsule in place of the time-honored but often ineffective operation of tonsillotomy. So wide is the demand for excision *in toto* and so clearly are the many indications for it coming to

be understood by general practitioners, that the intelligent laity are not far behind in appreciating the paramount need of radical measures.

Complete removal of the tonsils by one of several methods is therefore growing rapidly in popular favor and frequency. It follows that hemorrhages from this source will increase in number. Any instrumentation and technic, therefore, which will lessen danger and promote clean, quick work, will benefit all concerned. It is with this in view that I offer a few brief suggestions in connection with a new tonsil hemostat for routine use.

After trying for years various anesthetics, operative positions, instruments and technic, the following procedure is found most simple and satisfactory:

The patient, properly prepared, is operated on in a hospital or with hospital facilities at hand in order that for twenty-four hours or longer, if necessary, he may be under trained supervision.

Fig. 1.—Sluder guillotine.

Position: Recumbency upon the back.

Anesthesia: By gas and oxygen, with or without a trace of ether, administered through the nose, unless this is impossible, and by an expert in the use of the Teter apparatus. This obviates all anxiety from the anesthetic, and the patient's head is under perfect control.

Whitehead Gag: Commended because it is not in the way, never slips or fails to act, and is quick in adjustment.

Electric Headlight or reflected light from head-mirror, if electricity is not available.

Sluder Guillotine (Dr. Greenfield Sluder, of St. Louis): Illustrated in the accompanying cut. Its use was well-described by him in *The Journal* A. M. A., March 25, 1911. This instrument, when properly

used, will in the vast majority of cases quickly enucleate the tonsil with its capsule, no matter how small or buried.

While good work can be and is being done with the use of knives, scissors and snares, with or without more or less dissection by finger or other blunt object, all these methods require more time than the one mentioned, and necessitate working in a bloody field. With the Sluder guillotine the tonsil is scooped up from below and behind by judicious pressure outward and upward and forward against the angle of the jaw, the shaft of this instrument being directed across the throat from the opposite angle of the mouth. The tonsil is pushed through the fenestrum by pressure of a finger on the anterior pillar, beneath which is the bulging gland, and the blade is sent home along the posterior margin of the anterior pillar under the eye of the operator without injury to that muscle. The tonsil is then freed from its lingering attachment to membranous threads by a sweep of the index finger inserted behind it as it projects from the under-surface of the instrument (the surface toward the handle), through the fenestrum of which it has been forced and cut off. The blade, when properly handled, follows the line of areolar attach-

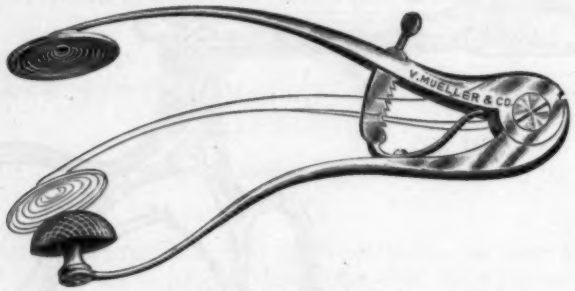

Fig. 2.—Corwin's tonsil hemostat.

ment between the tonsillar capsule and the surrounding muscles and the offending body is enucleated. The free rush of blood which invariably occurs as the tonsil is freed from its bed is controlled at once by inserting the tonsil hemostat shown in the accompanying cut. Several layers of gauze have been attached to the bulbous extremity of the inner arm. The spring ratchet makes adjustment as easy for removal as for inserting the instrument. The second tonsil is now removed with a practically bloodless field, and when both hemostats are in place excision of the adenoids is not interfered with, because the tonsil hemostats are formed to follow the buccal curve. Pressure in the post-nasal region at the former site of the adenoid is easily made, if need be, by a bit of gauze held in the grasp of a curved tonsil vulsellum, the shaft of which is slender and its bite small.

Removal of the tonsil hemostats one at a time makes further control of faucial bleeding relatively easy by the use of ordinary hemostatic forceps for torsion or ligation where such measures are needful. However, in the common run of cases, especially in children on whom the triple

operation is so frequent, the hemostatic pressure, for a few seconds, as described, is sufficient to control and prevent undue bleeding. The whole procedure takes but a few moments, the recovery from the gas is speedy, and the loss of blood much less than when hemostats are not used in pairs in this routine manner.

15 East Washington Street.

WHAT THE GENERAL PRACTITIONER SHOULD KNOW ABOUT THE EYE*

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It is quite impossible in a single paper of this kind to tell all that the general practitioner should know about the eye, nor will I attempt to bring anything new on the subject but will simply call your attention to a few of the most important points.

The opportunities for training in ophthalmology during the usual medical course are somewhat limited and the student's time is so much taken up with other branches of medicine that the graduate gains only an elementary knowledge of the diseases of the eye. However, if he will apply such knowledge intelligently and add to it from time to time by study and observation he will soon be able to diagnose the simple affections and differentiate these from the more serious.

At the last meeting of the American Medical Association, at Los Angeles, this defect in our present-day curriculum was discussed at length and resolutions passed to establish in all our leading universities a postgraduate course of one year on ophthalmology. While the object of this is primarily to lead to the title of Doctor of Ophthalmology, yet it will give all graduates in medicine an excellent opportunity to gain a better knowledge of the diseases of the eye.

Some physicians may think that even an elementary knowledge of the eye is not essential inasmuch as they refer all cases of eye complaints to the specialist, thereby shifting the responsibility. However, when we consider that 10 per cent. of all blindness in the United States is caused by ophthalmia neonatorum, a disease generally first seen and treated by the general practitioner, and that 50 per cent. of all glaucoma cases come to the oculist too late for the restoration of useful vision, this attitude is to be deplored.

One of the most important aids in the diagnosis of all conditions of the eye is the use of test letters. This at once brings out a very important point, namely the vision. With the ordinary Snellen or other test card hung at 15 or 20 feet the vision of each eye is taken separately and a note made of it for future reference.

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* Read before the Madison County Medical Society, at Granite City, Ill., Aug. 4, 1911.

Patients who use glasses for distant vision should be examined wearing the glasses. When an eye is found defective the cause of such defect should be definitely determined either by the physician or when necessary by an oculist. Such cases should not be allowed to fall into the hands of opticians and "spectacle vendors."

Patients often come to us in whom we find defective vision in one eye of which they had no previous knowledge, or knowing it, have continued without the proper correcting lenses and thus have lost the use of a most valuable organ. Most of these cases are due to a high grade of refractive error such as hypermetropia, or myopia, either alone or combined with astigmatism or to a high grade of astigmatism, which if properly corrected in childhood would have retained good use of such an eye; whereas, even though they are given a proper correcting lens in later life, they are unable to use the same because the eyes will not adapt themselves to the new condition.

A practical use of the ophthalmoscope can be acquired by almost any physician after repeated trials. While the finer distinctions of the fundus may escape him, gross lesions such as albuminuric or diabetic retinitis, hemorrhages, cataract, detached retina, tumors, choked disk and floating particles in the vitreous could be diagnosed with some degree of accuracy.

The external examination of the eye is not so difficult because of its accessibility. Such an examination is greatly facilitated by the use of a magnifying lens, preferably of about 2½ inches focus, 16 D., which can also be used for concentrating the light.

The examination of discharges from the eyes with a microscope is a great aid and very important in diagnosing and differentiating the various forms of conjunctivitis, abscesses and ulcers.

Carefully observing the size, shape, color and reaction of the pupils and the color of the iris will often lead to a diagnosis. Inequality of pupils may indicate a specific infection, a hemorrhage, abscess, exudate or tumor of the brain or an injury to the skull.

With both pupils dilated one would think of glaucoma, or disease of the chorioid or retina, or the use of such drugs as cocain, atropin or morphin, either locally or internally. In iritis the iris is of a darker brown than its mate, or a muddy color.

Every physician should know how to take the tension of an eye. This is a simple proceeding and with a little practice one can soon make out a difference in tension when it exists. Placing the two index fingers on opposite sides of the globe above, with the patient looking downward, you exert a gentle pressure. By trying the two eyes alternately several times and comparing carefully one can learn to recognize any increase in the tension. This is an important early sign in glaucoma.

In making a diagnosis here as with other organs of the body one should have in mind first the more common diseases. Among these are the various forms of conjunctivitis, which for convenience can be divided into two main classes, viz., simple and serious.

Simple conjunctivitis, usually due to the staphylococcus or xerosis bacillus, can be cured by the use of some mild collyrium. This is to be

differentiated mainly from mild forms of beginning iritis, inflammatory glaucoma, episcleritis and a congestion due to eye strain. A somewhat severer form is an acute mucopurulent conjunctivitis, the so-called "pink-eye," due to the Koch-Weeks bacillus. This is usually epidemic in the spring and fall months and is contagious. These cases should be advised to use separate towels, wash basins and handkerchiefs.

For one form of conjunctivitis, that due to the diplobacillus of Morax-Axenfeld, we have practically a specific in the zinc salts. The diagnosis is made by finding this diplobacillus with the microscope.

The serious forms are those due to the gonococcus, pneumococcus, streptococcus and diphtheria bacillus. The clinical appearance of these is usually very striking. The eyelids are swollen, discharge profuse, pain and lacrimation and photophobia intense. The most common form of gonorrheal infection is ophthalmia neonatorum. This usually develops in three to six days after birth but may be latent and develop in three weeks to two months later. Such cases have been reported. In children and adults a history of exposure will aid in the diagnosis, but in all cases only the microscopic finding of the gonococcus is final. These cases demand the most intelligent and energetic treatment from the start and unless there is immediate improvement should be placed in the care of the specialist.

Foreign bodies on the cornea should be at once removed with a foreign body spud, by the aid of a good magnifying lens and good light. A few drops of a 2 to 4 per cent. cocain solution, or better still a 1 per cent. holocain, or 2 to 4 per cent. alypin solution. The last two named do not attack the cornea or dilate the pupil. The use of cocain in an eye does soften the corneal epithelium and at times causes a denudation which is very uncomfortable to the patient.

The eye should be cleansed with an antiseptic solution, and a light dressing applied, preferably a little cotton or a few layers of gauze held in place by narrow adhesive strips. Wet packs soon become warm and cause much congestion, favoring the propagation of bacteria in the conjunctival sac.

Foreign bodies within the eye-ball can be located with the ophthalmoscope or the *x*-ray and removed with a giant magnet or other instruments. This should be done as soon after the injury as possible, preferably on the same day, as they can then often be removed through the original wound and are not held by the formation of clots and exudates. Also the eye then has a better chance for recovery. Glass and wood within the eye-ball are very difficult to locate and often are found only after the eye is enucleated.

In perforating injuries of the cornea when the iris is prolapsed or caught in the wound a free iridectomy should be done at once. This hastens recovery and the eye is less liable to become inflamed in later years.

Even text books differ in distinguishing between chalazion and hordeolum or stye. With a stye the onset is usually more acute, pain, swelling and inflammation more marked and the location more superficial, usually in a hair follicle or sebaceous gland of the skin. A stye is a boil on the eyelid.

Chalazia develop more slowly, and the symptoms are less severe; at times no discomfort at all excepting the presence of the tumor. They are nearly always situated deeply in the lid and show a discoloration of the conjunctiva opposite their center. They are located in a Meibomian gland within the cartilage of the lid and usually remain as a small round tumor after the inflammation and swelling have subsided. They may be dissected out or incised and curetted, the incision always being made on the conjunctival surface of the lid, never on the dermal surface, as then there will remain no visible scar to mar or distort the eyelid.

A stye may be incised at its yellowish discolored tip and the contents expressed by pressure. Hot applications and ointments may be applied to hasten the process of disintegration, rupture and discharge.

Among the diseases with which the general practitioner comes in contact and which may be complicated with eye affections are syphilis, tuberculosis, rheumatism, diabetes, Bright's disease and gonorrhea. The lesions so caused are generally serious and affect the internal and vital parts of the eye. Treatment of these complications should be both local and systemic. The Von Pirquet test, easily applied and interpreted, is of great value in disclosing the presence of tuberculosis especially in children. The use of tuberculin carefully watched is of great value in these cases and often the lesions rapidly fade away after a few injections. While salvarsan has been used but a short time, it promises to be a great benefit in cases where syphilis is the causative factor. Rheumatism is often the cause of iritis, which improves rapidly with the use of the salicylates.

Diabetes and Bright's disease are often first diagnosed by the use of the ophthalmoscope and appropriate treatment early begun generally prevents further progress of the retinal lesions. It is these cases which often go from optician to optician seeking a correction of their supposed error of refraction when it is proper diet and treatment of the kidneys that they need.

The differential diagnosis between glaucoma and iritis, and the great danger to vision by the wrong treatment of such, is one on which great emphasis is placed by most of our text-books and impressed time and again on the mind of the student. The result is that often the graduate leaves school with a poor idea of symptomatology of these important diseases, but a vivid one of the dire results which will follow improper treatment of the same. It is not uncommon for a general practitioner to bring in a patient with the statement that he is afraid to use anything in the eye for fear the patient had glaucoma, often when they have no symptoms of it; and one wonders how they could have been so misled. If one remembers the salient points of difference, and they are about as marked as the difference in treatment, one should have little trouble in making a diagnosis.

Inflammatory glaucoma is caused by some interference in the intraocular exchange of fluids of the eye so that they are retained and the tension of the eye greatly increased. This brings on an inflammation with eventual destruction of the retina and vision. The pupil of the

eye has a greenish appearance from which the disease derives its name, the pupil is dilated and the cornea hazy, or to use the classic illustration, like glass breathed on. The tension is increased and the patient complains of great pain, or neuralgia as they call it, which often amounts to hemicrania.

In iritis the pupil is contracted, the cornea clear with considerable circumcorneal injection, severe and marked photophobia (fear of light). Luckily for both these dreaded diseases we have specifics which if used early and promptly will alleviate the trouble and restore the eye to almost its normal condition. I refer to atropin in the treatment of iritis and eserin in glaucoma. In iritis it is of the greatest importance to secure at once and maintain complete dilation of the pupil. Once the iris becomes adherent to the lens the case is complicated, harder to manage, and when the adhesions remain the pupil may become entirely occluded with exudates. Such an eye has very poor or no vision and may at any time become inflamed and a source of danger to the good eye. None but a well-trained and experienced oculist should attempt to treat a case of glaucoma.

The great majority of patients suffering from frequent headaches have errors of refraction and lack proper lenses to correct the same. The mere fact that the patient is wearing glasses does not denote that they are correct and that such trouble may be excluded. Glasses given by the optician are almost invariably wrong, especially those given for close work. In some cases the changes in refraction are rapid and a slight change in the glasses even, when given by competent oculists, will give great relief to the patient. It is the physician's duty to exclude errors of refraction before giving analgesics and depressants which give but momentary relief and which soon lose their efficacy unless frequently repeated.

Improper balance of the ocular muscles is a most fruitful source of headaches. Nothing in the practice of ophthalmology is so difficult as the detection and proper correction of these latent deviations. However, when this is done it is not unusual for the headaches to cease and a feeling of comfort prevail which the patient had not experienced for years.

A good oculist should be able to differentiate between headaches due to errors in refraction and those due to inflammation of the accessory nasal sinuses. These are often productive of headaches, especially in the mid-frontal region, and are generally worse in the morning, the secretions collecting during the night causing the pain and headache by pressure. Tenderness can generally be elicited by pressure at the inner angles of the orbit and the patient will complain of a feeling of fulness in this region. Treatment by the rhinologist is often productive of results little short of marvelous, and the ocular symptoms vanish.

Not less interesting, because of an every day occurrence, are the changes of the eye under normal conditions caused by old age and therefore called presbyopia (*presbys*, Greek = the old man, and *opia* = the faculty of seeing) the agesightedness. As aging is a matter of climate it varies with every country you live in. The presbyopia is earlier in

the far South, in the Philippines as early as the 30th year, in our climate (I mean the latitude of Missouri and Illinois), the 37th year is the beginning of it. The farther north we go the later the agesightedness appears, but the 42d year is the latest time of its beginning. Women who have borne many children, in whom the climacterium sets in early, need the help of a glass for close work earlier than others, sometimes as early as the 32d year. Frequent attacks of systemic diseases, like chronic rheumatism, cases of nephritis and diabetes lose so much of their faculty of accommodation that the early use of spectacles in a man is nearly always indicative of disease, anyway of a lowered vitality. The necessity of frequent change and demand for stronger lenses is very suspicious and regularly occurs in glaucoma or pressure increase of the eye. The necessity exists of increasing the strength of the lens about every two years normally until the 57th year is reached, then about every three years up to the seventies.

If you hear frequent complaints of headaches or find a child not interested in books and pictures, rather reluctant to go to school and averse to reading evenings, be sure to suspect some deficiency in the eyesight. First get the history of the child, whether it had an inflammation of the eye in early childhood or any kind of lid trouble, because in nearly every case of red and inflamed lids the refraction and the general nourishment are at fault. Then see if it can read letters 20 feet away, covering one eye and then the other. If it cannot see one-half inch letters at that distance, send the child for examination to a competent oculist, because it is either nearsighted or very farsighted, possibly astigmatic. Nearsight (myopia), is due to an excessive length of the eye-ball, mostly inherited and often increased by close work or playing with too small toys, very frequently to the early use of needle and fine thread and the stooping position of all that sew. Farsight (hypermetropia), is caused by an abnormally short and flat globe and is distinguished by rapid tiring of the eye in near work. It is the cause of frequent headaches in the young and middle-aged and cannot be remedied by anything else than the correct lenses. Nationality plays its part in the production of myopia. The reason that some countries, for instance Germany, have had so much myopia, is on account of the want of proper glasses for hypermetropia and hypermetropic astigmatism. This condition is now happily fast decreasing as the result of scientific investigation and sanitary regulation, together with proper correction. In this country the condition has in quite a number of cases been caught in the very beginning stage of the error, mixed astigmatism, and checked by the use of proper glasses.

Here I want to mention a point which is not generally appreciated by the general practitioner, namely, that nine-tenths of all cross-eyed children and adults are far-sighted, so that early use of proper glasses will cure strabismus and will do away with the necessity of an operation. Operations for strabismus are often unnecessary, because in childhood strabismus is curable with lenses, and even up to the 24th year it will yield to treatment and glasses in some cases. The sad part about neglected cases of cross-eye is the loss of vision in the crossing eye and only

the retraining of the eye to receive pictures on the retina and use them can cure the strabismus. Early treatment, as glasses can be worn from the first year without any danger, is of the greatest importance.

Vision is often lost or impaired by the entrance of toxic substances into the system. Among these may be mentioned wood alcohol, quinin, tobacco, carbon sulphid, lead, arsenic, iodin, salicylates, ergot, male fern, phosphorus and nitrous oxid gas. Such a condition is termed amblyopia or amaurosis and is characterized by a retinitis and optic neuritis or atrophy. These patients usually have a spot in the center of fixation which is blind to colors. Most of the above-named toxics do not cause permanent injury to the sight if further ingestion is stopped. However, lead, quinin and wood alcohol do at times produce permanent changes which greatly affect the acuity of vision.

A prominent oculist reports the case of a woman who had amblyopia after taking 12 grains of quinin. This is the exception, for a very small percentage of those who take quinin, even in large doses, are so affected. The hypodermatic or internal use of strychnin is indicated in most all of these cases of amblyopia. In quinin amblyopia the field of vision often remains much contracted even though the vision is almost normal.

The eyes often become involved during the various exanthemata and infectious diseases. In diphtheria you may have an accompanying conjunctivitis due to the diphtheria bacillus or what is more common, a paralysis of accommodation, so that the child cannot see near objects distinctly. Strychnin is indicated. Some few cases that are slow to recover and must use their eyes may be given glasses temporarily. In measles, scarlet fever and small-pox a keratitis may develop so that it is important in all these cases to watch the eyes and inquire as to the vision. Patients who pass through a long siege of illness often have "weak eyes." Most of them recover good use of their eyes as their normal strength returns. Some need general tonics and stimulant treatment of the eyes and even glasses for a time.

BOVINE AND HUMAN TUBERCULOSIS

In the interest of children, who are especially in danger, and in the interests of sanitation in general, the standing rule for the inspection of milk and meat cannot be safely relaxed; on the contrary, precautions should be carried out which should bring better results in the protection against transferring tuberculosis by animal products, than have heretofore been enforced.

The commission speaks out plainly its belief that the prevention of the transfer of bovine tuberculosis with the milk would appreciably reduce the number of cases of tuberculosis of the abdominal organs, and of the glands of the neck in children, and for this purpose the sale of milk of any known tuberculous cow should be forbidden, no matter whether the disease has its location in the udder or in the interior organs.

This commission was appointed to inquire into the relation of human and animal tuberculosis. The report is dated London, 1911.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF THE ILLINOIS STATE MEDICAL SOCIETY

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NOVEMBER, 1911

REORGANIZATION OF THE ILLINOIS STATE BOARD OF HEALTH

Vague rumors of the reorganization of the Illinois State Board of Health came to a conclusion on November 1st, when Governor Charles S. Deneen, in a statement made to the editor of the *Springfield State Journal*, acknowledged that four members of the Board, to-wit: Doctors Wessel, of Moline; Richings, of Rockford; Schussler, of Orland; and Webster, of Chicago, had submitted their resignations.

The following statement of a conversation between the editor of the *Springfield Daily Journal* and Governor Deneen will give our readers the status of affairs the day we go to press. The whole matter was brought to a focus by the action of the District Medical Society, which held its meeting at Pana, October 31st. Dr. F. Buckmaster, of Effingham, offered the following preamble and resolution which were adopted without a dissenting voice, and no defense of Secretary Egan was voiced by any one present.

> "WHEREAS, It has come to our knowledge that Governor Deneen has commenced the renovation of the medical department of the state government; therefore be it
>
> *"Resolved,* That he be congratulated in this matter and urged to complete the renovation at the earliest possible moment."

"Governor Deneen stated last night in response to inquiries, that the retirement of four members of the state board of health is due to

expiration of their official terms. [This does not quite correspond with the statement made by one of the retiring members.] During the entire period of Governor Deneen's incumbency there has been incessant agitation over the personnel of the state board of health, resulting in many disagreeable situations. In order to relieve the administration of further embarrassment the governor admitted he has decided to appoint a new board of health. He expressed hope that the new appointees, when selected, may meet approval of the medical profession and create a better feeling between its members and the state board.

"Governor Deneen said that he is giving careful attention to the choice of the new members, and finds it somewhat difficult to make satisfactory selections. This is principally due to the fact that he is anxious to appoint a more progressive board and finds himself hampered by the fact that so many desirable physicians are included in the staffs of medical institutions.

"Objections are urged against faculty representation of medical colleges upon the state board of health, and many representatives of the profession who otherwise would be considered for appointment are rendered ineligible by their college connections.

"It is anticipated that the governor will announce the make-up of the new board at an early date, but he said last night that he has not reached final decision as yet in regard to any of the positions to be filled.

"It is the hope of the professional enemies of the board's secretary that reorganization of the state board of health will result in the selection of a successor to Dr. James A. Egan of this city. Governor Deneen was not willing to discuss the prospect in regard to this situation.

"Recent developments place the office of secretary of the board under civil service protection, and it is regarded doubtful that the new board will be able to dispense with Doctor Egan's service in any other way than is provided by the civil service act, which requires the filing of charges as a basis for removal."

Charges as a basis for removal against Dr. Egan will undoubtedly be filed if the civil service act is declared valid.

MOVEMENT FOR THE IMPROVEMENT OF MEDICAL EDUCATION

Thursday, October 19, there was held at the LaSalle Hotel in Chicago a meeting called by the Chairman of the Council, Carl E. Black; Chairman of Legislative Committee, L. C. Taylor; and Chairman of the Committee on Medical Education, E. Mammen. To this meeting were invited the following gentlemen:

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Clarence Earle	DesPlaines
R. C. Silberton	Pullman
Don Harvey	Chicago
Bismark Von Wedelstaedt	Chicago
J. R. Ballinger	Chicago
Carl Beck	Chicago
H. R. Boettcher	Chicago
C. A. Buswell	Chicago
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S. T. Flemlee	Chicago
Henry Faville	Chicago
Charles Elliot	Chicago
Robert Preble	Chicago
A. R. Edwards	Chicago
S. Leisler	Chicago
H. T. Patrick	Chicago
E. C. Dudley	Chicago
E. W. Andrews	Chicago
Joseph DeLee	Chicago
John G. Wilson	Chicago
Frank Billings	Chicago
A. D. Bevan	Chicago
Bertram Sippy	Chicago
E. W. Ryerson	Chicago
Ludvig Hektoen	Chicago
H. G. Anthony	Chicago
J. A. Capps	Chicago
George Shambaugh	Chicago
E. F. Ingalls	Chicago
J. M. Dodson	Chicago
Isaac Abt	Chicago
M. Goodkind	Chicago
D. Eisendrath	Chicago
C. Davidson	Chicago

W. E. Quine.....Chicago
C. S. Bacon.....Chicago
A. J. Ochsner.....Chicago
E. E. Wells.....Chicago
W. L. Ballenger.....Chicago
Charles Williamson .....Chicago
W. A. Pusey.....Chicago
C. P. Caldwell.....Chicago
William Fuller .....Chicago
E. Sackner .....Chicago
W. M. Harsha.....Chicago
Carl Sanger .....Chicago
E. C. Morton.....Chicago
C. H. Lovewell.....Chicago
J. C. Hepburn.....Chicago
S. L. Friduss.....Chicago
T. H. Renn.....Chicago
E. Patera .....Chicago
A. M. Corwin.....Chicago
George Webster .....Chicago
J. M. Patton.....Chicago
E. A. Gray.....Chicago
W. E. Grosvenor .....Chicago
F. H. Booth.....Chicago
E. L. McEwen.....Chicago
Otto Schmidt .....Chicago
S. V. Balderson.....Chicago
N. P. Colwell.....Chicago

DISTRICT 4

Councilor J. F. Percy.....Galesburg
M. N. Mackey.....Toledo
W. R. Allison.....Peoria
A. T. Riggs.....Media
Louis Becker .....Knoxville

DISTRICT 5

Councilor J. Whitefield Smith.....Bloomington
E. Mammen .....Bloomington
T. W. Bath.....Bloomington
W. H. Gardner.....Bloomington
George N. Kreider.....Springfield
E. E. Sargent.....Le Roy

DISTRICT 6

Councilor Carl E. Black.....Jacksonville
T. J. Pitner.....Jacksonville
E. W. Fiegenbaum.....Edwardsville
L. J. Harvey.....Griggsville
William Parker .....Mt. Sterling
W. H. Smith.....Godfrey
Henry A Chapin.....Whitehall

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J. J. Moroney	Breese
George S. Rainey	Salem
Frank Buckmaster	Effingham
F. M. Phieffer	Centralia
G. L. Armstrong	Taylorville
E. J. Brown	Decatur

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W. C. Blaine	Tuscola
J. T. Montgomery	Charleston
G. T. Weber	Olney
L. T. Weir	Marshall
E. E. Clark	Danville

DISTRICT 9

Councilor H. C. Mitchell	Carbondale
C. W. Lillie	East St. Louis
J. L. Wiggins	East St. Louis
H. C. Fairbrother	East St. Louis
F. W. Grinstead	Cairo
O. B. Ormsby	Murphysboro

These names were selected not by the Committee but by the Councilors of the several Councilor districts. While all of these parties did not appear a large majority did appear, and many of those not able to come sent letters expressing sympathy with the movement.

The meeting was organized by the election of Drs. E. Mammen, Bloomington, Chairman, and Dr. N. P. Colwell of Chicago, Secretary. Unfortunately Dr. Black was detained by serious illness, and Dr. Taylor was unable to attend. The meeting was addressed by Drs. A. D. Bevan, Bacon, Percy, Fiegenbaum, Brown of Sycamore, Burns, Billings, Hemenway and Kreider.

The tenor of the remarks was that conditions had about reached the limit in Illinois, and that a determined effort must be made by education of the profession and the public to demand the best conditions possible in educational requirements of those seeking to enter a medical school, thorough control of the students taking instruction; of institutions pretending to give medical instruction and discriminating examination of those completing the courses. To accomplish this object it was decided to ask the gentlemen composing the committees to appoint an advisory committee of three or five, and also one member of the profession in each county society in the State, and each district society in Cook County whose business it should be to focus interest on this important question. Also to secure a fund sufficient to permit the appointment of one person whose particular business should be to carry out the objects of the committee, for such a time as may seem necessary. The character of the men who met, and the enthusiasm which was shown, undoubtedly means that a new era in medical education is about to be inaugurated in Illinois.

EXAMINATIONS FOR LICENSE TO PRACTICE CONDUCTED BY THE ILLINOIS STATE BOARD OF HEALTH

We trust all our readers have noticed the remarkable results of the examinations made by our *de facto* State Board during the past sixteen months, a period curiously enough corresponding to the date when the Report of the Carnegie Foundation was promulgated. We hope that all remember the abuse of that report by Secretary Egan at the time when he said among other things:

1. "Nowhere between the covers of this report can there be found the slightest inkling that Mr. Flexner possesses the qualifications enabling him to determine whether a medical college is properly equipped to teach medicine and surgery, and whether proper instructions in medicine and surgery is given."

2. "Though we are loath to devote so much space to the report of the Carnegie Foundation, a report which, from our point of view, has already been given far more attention than it deserves."

3. "For the further enlightenment of our Illinois readers who, we do not doubt, are getting somewhat tired of the report of the Carnegie Foundation."

4. "Pausing in his meteoric dash through the western states, in the spring of 1909, Mr. Flexner dropped off in Illinois and inspected — as only he inspects — during the month of April, twelve medical colleges, one osteopathic institution, which Mr. Flexner classes as a medical college, three postgraduate schools and one school offering courses in certain specialties."

5. "The unsoundness of Mr. Flexner's opinion in regard to the powers of the State Board of Health was pointed out to him by the President and the Secretary of the State Board of Health in December, 1909."

6. "Mr. Flexner who evidently knows as little of law as he does of medicine" (see Bulletin, Vol. 6, No. 6, article entitled "The Report of the Carnegie Foundation," signed J. A. E.).

After having digested these few choice extracts from the pen of the secretary our readers will be prepared to appreciate the significance of the results of the examinations made before and after June, 1910.

From July 1, 1899, when the new law went into effect, to June, 1908, the number of candidates for licensure examined was 4,506; the number rejected, 186; percentage of rejections almost exactly 4 per cent. During this period the Board worked along unwatched by any one.

From Jan. 1, 1908, to July 1, 1910, 2,093 were examined and 314 were rejected, almost 15 per cent. This period corresponds with the active campaign of the committee of the A. M. A. and the Illinois State Medical Society against the outrageous laxity of the examinations.

From July 1 to date, or since the Carnegie Report, the number examined has been approximately 547; the number rejected 176; percentage of rejections 32.2. Had this percentage prevailed for ten years instead of one, there would have been 1,841 fewer applicants licensed in the twelve years and at least 1,000 fewer practitioners in Illinois at this time.

We pause here uncertain as to our obligations under the presentation of facts. Shall we congratulate Mr. Flexner on the tremendous influence his report has had on the Illinois State Board of Health, or shall we congratulate the Board on the beneficent effect the castigation it received in June, 1910, from the incompetent man who could not be influenced by the President and Secretary, has had on its conduct and action?

PROMOTION IN THE STATE HOSPITAL SERVICE

Dr. Ralph T. Hinton, assistant superintendent of Jacksonville, was on October 25th appointed superintendent of Elgin Hospital, by the Board of Administration. This appointment was followed by transfers of Dr. Foley, from Anna to Jacksonville; Dr. C. F. Reed, from Watertown to Kankakee; and Dr. T. R. Foster from Kankakee to Anna.

The transfers were all in the way of promotions. We congratulate the Board and the people on the new spirit which has been introduced in the State Hospital Service in the last year.

Good work is being appreciated and family influence and political pulls to a large extent eliminated from the medical service. Dr. Hinton has proven himself a progressive student, and richly deserves the appointment which he has received. The same we believe may be said of the other gentlemen named.

THE NEW CIVIL SERVICE LAW

This law, which apparently had its inception in the brain of the politician instead of the philanthropist, is having a hard road to travel. In the first place, the commission appointed to enforce it is endeavoring to cover every office in the state, regardless of either laws or justice; and in the second place the commission has made itself ridiculous by its rulings and reversings; thirdly, the law is being vigorously attacked in the courts to determine its constitutionality. Until this latter contention is decided we will say nothing further about the recent actions of the commission, and especially about its late secretary, Joseph C. Mason, who has resigned to take a position with the Illinois branch of the notorious "League for Medical Freedom." We can only wonder whether there might be any understanding between the Secretary of the State Board of Health and Mr. Mason, who we understand is a devotee of the Christian Science cult, and is thus evidently in league with all those elements fighting the regular profession.

MEETING OF THE INDIANA STATE MEDICAL SOCIETY

The 1911 session of the Indiana State Medical Association was held at Indianapolis, the last days of September, and proved to be a notable event. First we again call attention to the fact that this society meets in the fall, and that a number of state societies have abandoned the spring time, for the fall months for meetings. All report a decided benefit from this change.

At the Indianapolis meeting 748 members registered. The membership of that society is only about one-third that of ours; if the Illinois Society should have a meeting equally well attended, we should have more than 2,000 registered at the Springfield meeting, and this is the number that should be in attendance next May. So great was the number in attendance that the meeting place provided was entirely inadequate, and at one session the room was crowded to discomfort, and several hundred were turned away.

A new section on Diseases of the Eye, Nose and Throat was provided for, as it is said there are no less than 150 practitioners of this specialty in the state. Would it not be a good idea to have a special section on this subject in our society?

Nearly 700 attended the banquet, and fully 300 were turned away because they could not be accommodated. Addresses were made by distinguished men, such as Governor Marshall; ex-Vice-President Fairbanks; Dr. Wiley, of pure food fame, who is an Indiana man, and a graduate of the Indiana University; Dean Emerson of the Indiana School of Medicine, and others. The immense crowd was not disappointed, and it is said never in the history of the state has there been such a notable event for the medical profession. Dean Emerson's remarks indicate that the entire state society was united in an effort to improve medical education through one school supported by the state and fostered by private gifts of citizens. For instance, the late Dr. William Flynn of Marion, has made the School of Medicine the beneficiary to the extent of $30,000.

Medical defense was endorsed and will begin Jan. 1, 1912. When it came to finding a location for the next annual meeting there was but one bidder, and that location so badly situated that the delegates voted unanimously to meet again at Indianapolis. In all probability it will be so arranged in the future that every alternate meeting of the Society will be held in Indianapolis.

These facts have been gleaned from the columns of the October issue of *The Journal of the Indiana State Medical Association*, and furnish food for thought in connection with our own society. In conclusion we quote the following editorial note which is also a pertinent one to our members:

"With the increased attendance at the sessions of our State Association it becomes evident that the expense and work involved in entertaining the visitors is a large load for the local medical society to carry. There is no good reason why the practice of asking the local medical society to do all the work and pay most of the bills should continue to be followed. The Association should pay its own bills, and its representatives should have full charge and relieve the local medical profession of obligations which now are a little too burdensome. One good paid representative could be responsible for all the general arrangements, and he should be given authority to employ assistants as required. This representative need not be a medical man, but he should be thoroughly acquainted with the needs of the association and be given entire charge of the purely business arrangements for the annual session."

"Science is a first rate piece of furniture for a man's upper chamber if he has common sense on the ground floor; but if a man has not got plenty of good common sense, the more science he has the worse for his patient."

Correspondence

MISSOURI STATE BOARD OF HEALTH

JEFFERSON CITY, Oct. 4, 1911.

Dear Doctor:—Replying to your letter, I will say that the following medical colleges of Chicago, concerning which you make inquiry, are recognized by this Board, as accredited institutions of medical teaching, viz.: Herring Medical College, Chicago School of Medicine and Surgery, Jenner Medical College and Reliance Medical College.

The National Medical University is not accredited by us. We would not accept, for examination, applicants coming from any Osteopathic school or from any institution teaching Chiro-Practics or any other cult.

Schools of Mechano-Therapy we do not recognize. Neither do we recognize the Northern Illinois College of Ophthalmology and Otology, nor the Chicago School of Optical Science and Mental Therapeutics.

Yours truly,

FRANK B. HILLIER, Secy.

WHERE THE CORRESPONDENCE SCHOOL DIPLOMAS GO

EFFINGHAM, ILL., Sept. 30, 1911.

To the Editor:—I am writing this letter to you, and through your correspondence columns in the ILLINOIS MEDICAL JOURNAL, to the profession at large in the state.

There is a so-called "faith healer" at St. Elmo, Ill., by the name of William Smith. This man until two or three years ago lived on a farm, where he begun his "faith healing." He is, so I am told, without education and with nothing especially to recommend him to the public, unless it is, as I understand he says, that he is the seventh son of the seventh son. His business having grown too large, he moved to St. Elmo, where he treated his callers at his home until within the last few months when he there bought or rented a hotel near the depot, which is conducted by his brother for his patients, where he also treats them. He pretends to make physical examinations, diagnoses the cases, and treats them, for which he makes regular charges, but of course it is unnecessary to charge the majority of those who call on him for they probably donate more to him than he would regularly charge, which I understand from a great many patients is $1 per "treatment." His "treatment" consists principally of massage, and his promise to cure, but I understand at other times that certain special acts are made use of, as blowing on the part, spitting on the part, and rubbing it well with the fingers or hand, etc. As

far as I have been able to learn by talking with those who have visited him he promises every one absolute cure, regardless of their trouble, which of course he is not in position to have definite knowledge of. Earlier of course this man's patronage consisted of neighbors and people within a narrow limit of territory, but his fame greatly, and I might say rapidly, spread, until he is now being visited by people from many states, ranging from paupers to bank presidents, city and country folk alike.

Earlier he told people he was not allowed by the state law to make a definite charge, but gave his patients to understand that contributions were acceptable, which of course were usually freely given. Within the last year or two it seems that he makes regular charges for his work, where contributions do not come readily.

About a year ago the State Board of Health brought suit against him in the justice's court at St. Elmo, but of course he beat them, because no jury could be selected at home that would be governed in their decision by the law and evidence in the case. This simply served to aid him and make him very bold in his work. About the same time, I understand, he obtained a so-called diploma from some sort of a correspondence school, and since then it seems that he informs everyone that he has such a diploma, and that now he has a legal right to practice in this state, and charge for the same. His business now has grown so large that each patient registers at the hotel as he comes in, is given a number and he must take his "turn" in regular rotation in seeing him according to the numbers given.

To-day a patient was referred to us whom we found to have Hodgkin's disease; who has had a mass of glands on the right side of the neck for many months, which is now as large as a man's fist, and the glands in other parts of the body are beginning to enlarge. This man made four visits to see this "faith healer," so perhaps I can best give you an idea of his method of practice, as this patient gave it to me: Smith examined his neck and told him he had a goiter; he also examined his chest by percussion and auscultation and told him his lungs and heart were normal. He then "felt" of his abdomen and told him he had catarrh of the stomach. Then he rubbed the cervical mass freely and told him he would cure him if he would continue to come to him, and charged him $1 for the "treatment." This was repeated at each of the four visits. He also informed him, as above stated, that he had a diploma now and that no one could prevent him from practicing in this state and to charge for it. This seems to be about his routine in all cases.

To give you an idea of the magnitude of his business, a man who had just come from there, told me this evening that there were now 500 registered on the waiting list who take their "turn" at seeing him. I am told also that often people will pay from $5 to $10 to get the "turn" of some one who is at the head of the list. He is also making business for St. Elmo in many ways, and of course the majority of the people think it should be allowed to continue, and a jury of St. Elmo people are not

going to stop it. I am also informed that he occasionally gives prescriptions, calling for drugs. There is no question but that this man is violating the practice laws of this state every day and it is high time the profession of the state were cooperating with the State Board of Health in bringing this fellow to recognize such laws as we have, though they be extremely loose in their limitations. I have no doubt but that physicians from almost every town in this state could report to the State Board of Health the names of many who have visited him, and I hope that in this one matter the profession at large in the state will work in unison to the extent of bringing this man within the bounds of the law. There is a constant clamor all over the country, and in this state in particular, for higher qualification on the part of the doctor, constantly making it harder for the medical student to enter at the front door of the profession, while it seems the bars at the back door are entirely down for the entrance of such fellows as this into practically all of the financial benefits accruing to the honest qualified practitioner of medicine. The state is full of irregulars and quacks, but this is the rankest violation of the practice laws of the state, and of right and justice that I have ever seen. I know our state laws are extremely loose, but there is surely a limit which this man could be brought to recognize, and if such is not the case then it is high time the profession of this state were uniting in an effort to see better laws placed on the statute books, and that the matter be given no rest until it finally comes, for if the profession will unite in this one request, the politicians of the state must finally grant it in the proper legislative act. I hope to hear from other physicians in this state directly or through the columns of THE JOURNAL in this matter, and hope each of you who feels interested in this thing, and who has personal knowledge of the web this man has woven about the suffering and confiding public will take the matter up directly with the State Board of Health. I hope you will be able to publish this in your JOURNAL. Thanking you for the same, I am, Very truly yours,

F. BUCKMASTER.

MISREPRESENTATION OF FACTS

To the Editor: Many members of the medical profession in Illinois have been deceived by the persistent, systematic, and almost criminal misrepresentation of the State Board of Health, and certain interested aids. Is it not due to the state that you publish facts in regard thereto? The effort to secure a change in the Board does not arise from personal ambitions. Conditions are disgraceful.

June 13 Dr. Webster, President of the Board, Dr. Egan, its Secretary and Executive, and Dr. Charles J. Whalen, Chairman of the Medical Relations Committee of the Chicago Medical Society, appeared before the Council of the Chicago Medical Society and made the statement that no further prosecutions were possible under the medical practice act, because of the passage of House Bill 311. In support of their statement

they said that the general appropriation for the Board contained a provision that no part thereof should be spent for legal services, and that the Attorney General had rendered an opinion to the effect that it is not the duty of State's Attorneys to prosecute violators of the medical practice act. (See *Bulletin*, Chicago Medical Society, June 17, 1911, pp. 3 and 4.) The same statements were made in the article by Dr. Whalen, published in the September, 1911, ILLINOIS MEDICAL JOURNAL, p. 332, and repeated by him at the meeting of the Council, October 10. Shortly after the meeting above mentioned, the Supplement to the April, 1911, *Bulletin* of the State Board of Health of Illinois appeared, and on page 9 we are informed that the only opposition to said H. B. 311 came from the same State Board of Health and the committee of which Dr. Whalen is chairman. At the bottom of the page we read: "But as held by Attorney General Hunt in 1887, it is not the statutory duty of state's attorneys to bring suits for violations of the medical practice act. Few state's attorneys have acted for the State Board of Health in the past, even when they were permitted to retain the fines as compensation. Practically none will act after July 1, when the fines must be turned into the state treasury."

What are the *facts?*

A. Because certain state boards and officers, in defiance of law, persisted in so conducting their operations that it was difficult to keep track of their financial transactions, H. B. 311 was passed by the last legislature. This bill, now a law, makes no real change in previous statutes, but it makes it more emphatic that fees and fines received must be paid into the state treasury. It makes it imperative that the state executive officers must pay nothing out, except from legally appropriated funds. It in no way hampers the State Board of Health *in honest* operations.

The biennial appropriation, so far as applies to the said Board is found on pages 105 and 106 of the (Session) Laws of Illinois, 1911. The first paragraph provides for salaries; second, emergency fund; third, office expenses; fourth, antitoxin; fifth, treatment of rabies; sixth, $20,000 per annum for the board in work of licensure. This paragraph closes with the words: "Provided, that no part of this sum to be expended for legal services." The seventh paragraph, entire, reads: *"For legal services for an attorney for the State Board of Health, $5,000."*

B. The Biennial Report of Attorney General Hunt, 1887-8, does not contain any opinion which could by any possibility be so twisted as to imply that it is not the duty of state's attorneys to prosecute violators of the medical practice act. He does not mention the act, nor the Board. He does call attention to a defect in the law as to the payment of state's attorneys, and that defect, as he mentions in his next Report, was corrected at the next session of the legislature.

July 13, 1910, Attorney General Stead rendered an opinion referring only to the enforcement of the medical practice act. (Biennial Report, 1910, p. 305.) In this he holds that it is the duty of state's attorneys to sue for the recovery of a penalty imposed for violations of the medical

act, and that state's attorneys are not entitled to fees in such cases, but they are entitled to 10 per cent. commission on amount collected. Dr. Egan and Dr. Webster must have known of this.

In 1901 Attorney General Hamlin (Biennial Report, 1901-2, p. 391), gave a very full opinion on special attorneys, mentioning specifically the State Board of Health, to which the following statements in the said opinion apply: It is the statutory duty of the Attorney General and state's attorneys to furnish all legal services required for state officers and boards. If it were not so provided by statute, it would still be the common law duty of the Attorney General. It is the duty of the state's attorneys to institute and prosecute in their respective counties, all suits and prosecutions required by state officers and boards. The state's attorneys have a just claim for fee or commission on all cases brought by state officers in their respective counties. There is no provision in law by which the State Board of Health may employ a special attorney. Neither may the board legally pay such special attorneys. The statutes provide what shall be done with fees and fines received by the Board, and the Board cannot lawfully divert those moneys.

On page 398 we read: "It makes no difference, however, to whom, or into what treasury or fund such fines and penalties may, by law, be payable; the provision is made by statute in every instance for the disposition thereof, and a diversion of the same out of the lawful channel, into the hands of a special attorney, employed without authority of law, though in conformity with precedent, is unwarranted."

Believing that Dr. Whalen had been misinformed, I wrote a brief statement of these facts to Dr. George F. Suker, Secretary of the Chicago Medical Society, asking that it be published in *The Bulletin*. In reply he asked me to present the evidence at the meeting of the Council, October 10. I appeared before the council with all of the documents mentioned. Drs. Whalen and George W. Webster were present. I made the statement and offered to show any one present the citations mentioned. Before I finished Dr. O'Byrne objected to my presenting the evidence, and the minutes of the meeting, as published in *The Bulletin*, October 14, made no mention of the matter.

Why does the Board persist in their falsification? According to the Bulletins of the Board, Charles Alling, Jr., is the unlawfully appointed attorney for the Board. The Board has unlawfully diverted public money into his private pocket.

As a Board of Health the board has been operating under Chapter 126a of the Statutes, has received appropriations and its accounts have been audited by the State Auditor. As a license board, under Chapter 91, it has audited its own accounts, and experience shows that it is very difficult to get at anything more than a general statement of the moneys handled. All of the above statements are easily verified by every citizen, and should convince of the corruption in the Board.

Evanston, Oct. 17, 1911. HENRY B. HEMENWAY.

COUNTY AND DISTRICT SOCIETIES

ADAMS COUNTY

The regular meeting of the Adams County Medical Society was held Oct. 9, 1911, at Quincy, and proved to be the banner meeting of the year in every way.

Dr. John L. Porter of Chicago, an honorary member of the society, was the guest of the day. A clinic was held at Blessing Hospital, beginning at 8:30 in the morning, and continuing until 2:30 in the afternoon. A large number of patients were examined and three were operated on.

Among the cases examined were: anterior poliomyelitis, Pott's disease, tubercular knee joint, talipes planus, etc. An extreme case of talipes calcaneo varus was subjected to operation, also one of talipes valgus, and another of spinal trauma. After leaving the hospital the members enjoyed a delicious luncheon at the Hotel Quincy.

The afternoon session took place at the Elks Club Rooms. A motion prevailed that the minutes be suspended, and Dr. Porter allowed to address the society on "The Treatment of the Paralytic Deformities Resulting from Poliomyelitis." Two very interesting cases illustrating some of the points brought out by the speaker, were presented. A rising vote of thanks was given the Doctor for his instructive address. The large attendance showed how the members of the Adams County Medical Society esteemed their visitor and fellow member. On this occasion we had with us the superintendent of Blessing Hospital and a number of nurses. After a most successful day, the meeting adjourned.

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Regular Meeting Oct. 4, 1911

The president, Dr. John M. Patton, called the meeting to order at 8:30 in the Assembly Hall of the Northwestern University Building with the following:

We begin the scientific work of the season with a paper on Rabies* by Passed Assistant Surgeon Stimson of the United States Marine-Hospital Service, Washington. (Applause.)

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY

Regular Meeting, April 18, 1911

A meeting of the Chicago Laryngological and Otological Society was held April 18, 1911, with the president, Dr. C. M. Robertson, in the Chair.

A LARGE LIPOMA OF THE LARYNGO-PHARYNX: REMOVAL EXTRAORALLY UNDER COCAIN

ELMER L. KENYON, M.D.

The tumor occurred in a young woman aged 27 years. It reached from below the tip of the epiglottis to a point opposite the base of the uvula, and filled a very large part of the laryngo-pharyngeal space. After careful diagnostic study it was decided to remove the growth in the manner least dangerous and most comfortable to the patient. Under cocain the tumor was carefully shelled out

* Text of paper and discussion appear on page 591.

through a long incision through the mucous membrane over the tumor, without great difficulty and with perfect success. A very marked increase in weight followed.

DISCUSSION

Dr. Holinger: Judging from the size of the tumor which Dr. Kenyon just demonstrated it seems almost impossible that the patient was able to breathe, since the swelling was certainly large enough to fill an ordinary pharynx completely. Several years ago Dr. Holinger reported before this society an observation of a still larger tumor that proved to be a very soft and very movable sarcoma which, when the patient opened her mouth, left only a narrow air passage on one side. She could not keep her mouth open more than a few seconds at a time for lack of air. When she closed it she would make several motions of swallowing, thus pushing the tumor into the naso-pharynx. Afterwards she breathed quietly but as soon as she opened her mouth wide the tumor fell down into the oro-pharynx. In the removal a tracheotomy had to be performed, recovery was uneventful.

REMOVAL OF SCISSORS-BLADE FROM THE EAR THREE YEARS AND THREE MONTHS AFTER ITS INTRODUCTION

Otto J. Stein, M.D.

This piece of a scissors-blade was removed from the ear of a colored man 43 years of age. It was removed Feb. 17, 1911, or three years and three months after its introduction.

The first time the patient presented himself was on Sept. 1, 1909, with a history of having been stabbed in front of the left ear with a pair of scissors ten months previously, or in November, 1908. At the time of the injury he entered Cook County Hospital and the attending surgeon performed a postauricular incision removing two pieces of steel. Following this the ear continued to pain and a profuse suppuration from the canal ensued. This condition continued to prevail at the time he presented himself on his first visit to Dr. Stein's clinic at the Post-Graduate Hospital. At this time the examination disclosed a piece of metal, easily seen and felt, in the auditory canal. The patient was advised to enter the hospital for its removal but was not on hand on the day set for the operation and was not seen again until Feb. 17, 1911, seventeen months afterwards. At this second appearance the ear presented considerable swelling in front of and below the auricle; pain and a profuse and fetid discharge from the meatus. A piece of metal could easily be distinguished about one inch down the canal blocking it entirely. A hooked probe showed it to be firmly imbedded. The patient now readily consented to have it removed and an incision was made back of the auricle through considerable infiltrated tissue until the bone of the process was reached and resting against the anterior surface of its bony tip was found the pointed end of the scissors blade.. The opening in the posterior membranous wall was enlarged to admit of the delivery of the blade. It lay in an oblique direction from above and anterior to the tragus, through the anterior-superior angle of the membranous wall and across the auditory canal and through the inferior-posterior angle of the membranous wall, so that the point of the blade rested against the anterior surface of the mastoid tip with one flat surface towards the drum membrane and the other presenting towards the external meatus.

Upon its removal with forceps the blade showed considerable corrosion. The blade measures 1¾ inches long, ½ inch wide at its broadest and ⅛ inch at its back.

DISCUSSION

Dr. Joseph Beck in discussion said that he was the physician at the Cook County Hospital whom Dr. Stein referred to in his report. The man came under his service at the hospital about one year before, with the following history and findings: While walking by an alley one night, in an intoxicated condition, a

man jumped out and struck him a blow with a knife on the side of his head, knocking him down. On examination three days later, Dr. Beck found an external wound, about half an inch wide, just below the zygoma, in front of the tragus. From the external ear was a discharge of pus which, after being washed out, disclosed a dark body that sounded metallic to the touch of a probe. No tenderness over the mastoid. Not much effect on the hearing. The one remarkable fact was the absence of some facial paralysis or salivary discharge from the external wound since the direction of the passage of the then suspected knife-blade appeared to be right through the parotid gland. An *x*-ray picture was taken and this showed a knife-blade, but of a very peculiarly shaped point, as though it were blunt. Dr. Beck decided to remove this foreign body under general anesthesia by going behind the ear, and it was necessary to chisel off some of the mastoid process since the blade had gone into the bone. On liberating the blade it was found that the explanation of the blunt end of the knife-blade was that the tip was broken and turned under the main portion of the blade. On removing the two portions of the knife-blade no evidence of anything else foreign was found, but after hearing the report of Dr. Stein this evening Dr. Beck believes that more careful examination would have disclosed the second portion of the scissors. In view of the history and the rarity of the employment of scissors as instruments of attack, he was satisfied with the knife-blade, especially after he explained the peculiar shape of it by the small second piece of point. The patient left without permission on the following day, and Dr. Beck heard nothing more of him until Dr. Stein told him personally of the case.

There are several points of interest about this case. First, the interpretation of the radiogram in showing the blunt end of the knife. The reason that the second blade did not show is that it was very likely just below the one Dr. Beck removed, and they both showed as one blade. A more important point is the question of malpractice in cases in private practice particularly. Dr. Beck has inquired about it and found that since the patient left without permission before he was discharged he assumed all the responsibility of complications or failure. Another *x*-ray picture subsequent to the operation, and reexamination of the ear, would have disclosed the foreign body.

THE INFERIOR TURBINATE: ITS LONGITUDINAL RESECTION FOR CHRONIC INTUMESCENCE

Otto Freer, M.D.

Dr. Freer mentioned the frequency with which simple venous distention of the cavernous tissue of the mucosa-periosteal covering of the inferior turbinate (so-called intumescence) is mistaken for true hypertrophy, so that confusion in the matter exists even in the rhinologic textbooks, whose illustrations portray as hyperplastic formations the often enormous globular swellings of the posterior ends of the turbinates due to mere intumescence. The vasomotor origin of these swellings is revealed by an application of adrenalin which causes them to vanish completely.

The intumescent inferior turbinate swells in all directions, backward into the choana, upward towards and even to the middle turbinate, downward to the nasal floor and forward into the nasal vestibule, so that when marked the intumescense may completely close the way for air.

Chronic intumescence is a very frequent affection and, as it is only temporarily influenced by local applications, its treatment is surgical. The usual operations, the cautery and the complete cutting away of the turbinate are objectionable, the cautery because it is ineffective and transient in its effect, and turbinectomy because it deprives the naris of the moistening effect of the turbinate and leaves a ragged, scabbing stump. Dr. Freer therefore recommends a longitudinal resection of the turbinate which reduces its size as desired and leaves it covered with mucous membrane after healing. The operation is described as follows:

The patient lies in a semirecumbent position on an operating table or chair, preferably one which may be raised or lowered, while an assistant behind his head holds the nose open with the retractors of Dr. Freer's set of septum instruments.

To make the turbinate insensible and bloodless, cocain flake crystals are rubbed into its surface with a small swab, moistened with adrenalin.

The operation is begun by a small vertical cut with a myringotomy knife at the foremost end of the turbinate, where it joins the superior maxilla. Through this cut the knife uplifts the covering of the convex side of the turbinate for a distance backward, and it is then replaced by the long sharp elevator of Dr. Freer's septum set, which completes the elevation backward to the rearmost part of the turbinate and downward to its lower border. The blades which detach the covering must be sharp, as it must be dissected off, for, because of the roughness of the bone, it is impossible to bare it entirely of its periosteum, which clings to the indentations.

When the mucosa of the convexity of the turbinated bone is completely uplifted from it, it is cut through along the lower border of the turbinate either from underneath with a minute, sharp-pointed curved bistoury or, as is usually the most feasible, from without, thus liberating a flap composed of the covering of the convexity of the turbinate.

This flap is reflected upward, leaving the bone uncovered on its convex side and ready for the chisel. The vertical part of the turbinated bone is then longitudinally chiseled away from its front to its posterior end, the mucosa of the concave (outer) side being sacrificed, as Dr. Freer has found it not only useless but inadvisable to preserve it as the tumescence is apt to return if it be left. The rearmost part of the turbinated body, just in front of the Eustachian orifice, remains attached by the soft parts, which must be severed by the sharp elevator while the bone is pulled upon by forceps. Its sudden release indicated that its last attachment has been cut through.

The flap is then made to cover the stump created by the horizontal part of the turbinate and the operation is completed by the insertion of Dr. Freer's layer tampon as described in his articles on the submucous resection of the nasal septum.

The advantages of the operation are:

The covering of all exposed bone by a smooth flap, so that when the packing is removed, after twenty-four to forty-eight hours, there is no bleeding.

Healing by first intention with no scabbing.

Permanent reduction of the turbinate to the size desired with absence of further intumescence.

Preservation of the physiologic function of the turbinate as here described for several years with perfect satisfaction and recommends it as a tried procedure.

DISCUSSION

Dr. John Edwin Rhodes stated that Dr. Freer presented in his usual clear and lucid manner his operation on the inferior turbinated body and he has little to add. The fact is recognized by all that this structure has an important physiologic function in moistening and warming the air before it enters the lungs, and any operation should conserve that function to the highest degree possible. It is so easy of access and furnishes such an easy field for operation by many of the methods recommended, that Dr. Rhodes would like to sound a note of warning as to the tendency to operate too often when more conservative measures only are indicated. He deprecates this tendency to operate except as a last resort. All have seen cases in which the radical measures in making a free nasal passage have resulted in a condition much worse than the original complaint. A dry, crusty nasal cavity, dryness of the mucous membrane of the naso-pharynx and pharynx, and an obstinate chronic laryngitis are sometimes the result of these operations. The operation under consideration, because it preserves such a large portion of the mucous membrane and underlying tissues, forming a turbinated body whose physiologic function is largely preserved, appeals to Dr.

Rhodes and he would certainly favor its substitution for the reckless sawing, cutting and tearing operations by cutting forceps that are largely in vogue.

From his own experience of twenty-five years Dr. Rhodes does not hesitate to select the galvano-cautery or cauterization by chromic acid in suitable cases. While he uses them possibly less frequently than formerly he has seen too many excellent results in selected cases to think of discarding them altogether. They can be accurately applied in these hypertrophic cases in definite areas, and there need be little or no subsequent scabbing or discomfort where linear cauterizations are made, and the narrow cicatricial line adequately controls the swelling and interferes very little with the normal function of the tissues. With hypertrophy of the bone, of course, this form of treatment would be inadequate and the operation described by Dr. Freer is quite ideal. In other cases of marked nasal obstruction such as he has described it would be the operation to be advised also. Dr. Rhodes has had some difficulty in his operating by this method in lifting the closely adherent membrane from the surface of the irregular nodulated body of the turbinate especially where previous cauterization had been done. The difficulty of disengaging the posterior end, which Dr. Freer speaks of, is also one that some other form of instrument might overcome. A guillotine slipped over the forceps holding the fragment, or the wire snare, suggest themselves as a possible solution of the problem. Dr. Rhodes wishes this operation might displace largely some of the other reckless methods he has referred to.

Dr. Joseph C. Beck stated that this operative procedure appeals very much to him because it is strictly surgical, sufficiently radical and still conserves the physiologic function of the inferior turbinal. Particularly the preservation of the mucous membrane flap, which covers the denuded bone, is very prettily demonstrated by the author. To that point has Dr. Yankauer contributed a great deal in his suggestion to suture the dissected mucous membrane in resection of the hypertrophied inferior turbinal. There are several statements that the author made in reference to the pathology that Dr. Beck wished to take issue with. He speaks of the hypertrophy and says it is due to the lymphoid tissue overgrowth, in contradistinction to the condition he is describing to-night, namely, the turgescent or vaso-motor disturbance. As a matter of fact, in hypertrophic rhinitis it is usually an inflammatory condition, with hypertrophy of all or any of the various component structures of the turbinate, as, for instance, we can have hypertrophy of the epithelium covering the turbinal, or the mucous glands may be increased; the bone and the loose areolar tissues may be increased in size as well as numerically; that is hyperplasia. Again, the vessels may be hypertrophied and increased in number; that is, this erectile tissue, and we can and frequently do have hypertrophy or hyperplasia, with turgescence in the same inferior turbinal. Dr. Beck has demonstrated that to himself repeatedly in making histologic examinations of tissue removed in the partial turbinectomies, and in this connection he would like to ask Dr. Freer if he has made any investigation along this line in the many turbinal operations he has done by this method, since that would add considerably to the subject.

Dr. Edwin Pynchon: Enlargements of the inferior turbinal may in a general way be divided into two classes: those in which there is a chronic hypertrophy or relaxation of the soft tissue, and those in which the bony framework is of too great size. In the latter case the soft tissue may be practically normal. In either case respiration may be obstructed or drainage made defective.

Bony enlargement of this turbinal may be due to either a general thickening of the bone or, as more frequently occurs, to an increase in size of the bony scroll, which may extend downward too near the nasal floor, causing defect in drainage, or outward from its attachment so as to be too near the septum, thereby obstructing respiration. In other cases the scroll may be so large as to be defective in both of these described ways. Bony enlargement of this turbinal is generally limited to the anterior three-fifths of the body.

For correction of this defect, when the enlarged scroll extends downward too near the floor, Dr. C. R. Holmes originated a method of procedure whereby, with a delicate saw introduced above the bottom of the scroll, a sufficient section is

removed to insure good drainage. In this way great benefit has been secured, particularly in cases in which tinnitus and deafness were observed. By this operation as described complete relief is obtained in a large number of cases, though when the upper portion of the bony scroll is too near the septum some obstruction to respiration will continue if a further step be not taken. For this purpose, after removal of the lower portion of the scroll, as suggested by Dr. Holmes, Dr. Pynchon has designed a small saw with convex blade wherewith, by sawing from below upward, the bone is severed without injury of the soft tissue above, and in this way the remaining portion of the body is caused to drop away from the septum. By the use of tampons to retain it in its new position the severed bone reunites and both the obstruction to respiration and drainage are corrected. This method of operation Dr. Pynchon has previously described, whereby a permanent correction of this trouble is secured.

Enlargements of the soft tissues, wherein the bone is not involved, are best corrected by incising a sufficient section of the same, as suggested by Dr. Freer in his paper, so after healing the passage will be sufficiently roomy. The galvano-cautery can also be employed, and when the posterior end of the bone is too large the hot snare is the best method of treatment.

Dr. Elmer L. Kenyon: It is not easy to realize the whole significance of the procedure just described by Dr. Freer. He is to be congratulated upon opening up so suggestive a field but much experience will be required to determine just what may be expected of the method. He has shown us that the mucous membrane can be elevated from the bone of the lower turbinate over a large area and that this must be accomplished by sharp rather than by blunt dissection. The second step in his procedure is the cutting away of the lower edge of the denuded lower turbinate bone. Evidently these are two quite distinct procedures, since the operation on the bone could not well influence the result upon the intumescence of the superior portion of the turbinate body, which we are given to understand is corrected quite as completely as the intumescence of the lower part. The first thing to be determined would seem to be the effect simply of elevation of the mucous membrane without incising it and without removal of any part of the bone itself. Knowing how far the chronic vasomotor dilatation would be corrected from such a procedure alone, one would be in a position to realize exactly the further effect of incision of the mucous membrane and removal of bone in addition.

In instances of chronic intumescence, certainly very common, in which the turbinate bone is far from being too short but in which the lower meatus is filled by intumescence, one would fear that incision of the bone with correction also of the intumescence might easily result in an excessively large breathing space.

The cautery has a great advantage in enabling the operator to place and adapt his operative procedure exactly to the degree and place of vasomotor disturbance. Especially is this so where a certain amount of hypertrophy accompanies the intumescence, a common occurrence. Whether the new procedure could be so well adapted to the variations remains for experience to determine. Widely varying degrees of tendency to dilatation exist in different cases and therefore the same procedure for all cases, as seems to be contemplated by this paper, does not seem rational.

Moreover, what the ultimate effect of extensive denudation of the turbinate bone upon the physiologic capability of swelling and contracting of the mucous membrane might be remains to be determined. For this physiologic capability has to do, probably in an important way, with the infiltrating and warming functions of the nose, under conditions producing irritation of the nasal mucosa, and should by no means be too greatly interfered with. Thus are opened up questions all of which require to be studied before this interesting procedure can take its place with certainty in rhinology. Dr. Kenyon thinks Dr. Freer is to be congratulated for thus stimulating this new field of inquiry and he will gladly try the method.

Dr. Otto Freer (closing discussion): Dr. Freer found the favorable comment of Dr. Rhodes, Dr. Beck, Dr. Kenyon and Dr. Wilson most gratifying. The easiest part of the operation is the elevation of the mucosa of the convexity of the turbinate. The accurate division of the flap along the lower border is more difficult. The tendency is to place this cut too high and so to make too narrow a flap, or else to buttonhole the mucosa halfway back and so to sacrifice the posterior half of the flap. The first operations are necessarily crude, but experience will improve the work and missteps are not fraught with such serious consequences as in the case of septum operations.

Dr. Rhodes very properly emphasized the uncertainties of the cautery, and its use has certainly become very limited. Dr. Freer did not think that the probing mentioned by Dr. Sonnenschein as a Vienna method would be even as effective as the cautery, even if the impossible were possible and a probe could be made to travel under the toughly adherent mucosa-periosteum. Only a sharp blade can do this.

In regard to the Kirstein lamp, Dr. Freer finds it indispensable for accurate intranasal work and regards the crossed filament light of Brünings as far superior to any yet devised for deep illumination. It takes the place of the regular Kirstein miniature lamp and may be obtained of F. L. Fischer, Freiburg in Breisgau Germany.

Dr. Freer agreed with Dr. Pynchon's view that chronic intumescence of the posterior end of the inferior turbinate was a cause of Eustachian obstruction, the reason probably being that the congestion of the mucous membrane extends backward and into the lumen of the Eustachian tube, which lies close to the turbinate. Dr. Freer has seen such Eustachian obstructions disappear after resection of the inferior turbinate body.

The objection to the saw for the removal of the bone, is the fact that its distal end punches into the region of the Eustachian tube at every thrust and that, in such a narrow cavity as the nose, it is an inacurrate instrument, which can only cut in a straight line, causes a great deal of pain, especially if it stick in its course, and must be jerked free. It is also apt to tear the flap. The chisel is much better adapted to the task.

In regard to Dr. Beck's question concerning a histologic examination of the portion of the turbinated bodies removed, Dr. Freer had not had time to make this but he felt satisfied that the close retraction of the mucous membrane to the bone produced by adrenalin was proof that the swelling, in all but a small minority of the cases seen by him, was simply due to a vasomotor dilatation of the cavernous veins of the turbinate. Dr. Beck's remarks suggested an interesting pathologic research for any one wishing to make a study of the changes found in hypertrophy and intumescence.

Dr. Freer replied to the question of Dr. Eugene R. Lewis of Dubuque as to what surface the flap adheres to in healing, that the cut surface of the bone and the cut surface of the outer covering of the turbinate form a raw surface broad enough for the attachment of the flap, which curls around the bony stump and forms a smooth border for the reduced turbinate.

ON THE THEORY OF VESTIBULAR STIMULATION

Geo. E. Shambaugh, M.D.

Dr. Shambaugh demonstrated a number of drawings of anatomic preparations of the crista ampularis. On the basis of his anatomic studies he has endeavored to analyze the physical relations which result in a stimulation of the hair cells of the crista ampularis. As a result of this study he dissents from the Breuer hypothesis of displacement of the cupula from the impaction of endolymph currents. He concludes that the reaction in the cupula from endolymph currents is more in the nature of a pressure against the haircells than an actual displacement of the cupula. Working from this hypothesis he concludes that only the haircells on the side of the crista receiving the impact are stimulated. Furthermore that the rise and fall of intra-labyrinthine pressure associated with each

pulsation of the heart must produce pressure of the cupula against the hairs on each side of every crista and thus stimulate all the haircells of the various ampullæ. In this way he would account for the tonic impulses which apparently emanate from a normal labyrinth. Since the Ewald experiment has demonstrated that a current in one direction produces a greater stimulation than in the other Dr. Shambaugh concludes that the haircells on one side of each crista are more sensitive to stimulation than those on the opposite side. It follows, therefore, that whenever the tonic impulses coming from one labyrinth are unchecked by those coming from the opposite side the resulting nystagmus will always be directed toward the side from which these impulses emanate for the reason that the stronger impulses come from those cells which direct the nystagmus toward the same side.

Dr. Shambaugh discussed his reason for concluding that the phenomenon of rotation nystagmus must depend upon the continuation of peripheral stimulation, and discussed the mechanism by which he believed this continuation was possible. He points out a number of fundamental objections to the Barany hypothesis of centers in the cerebellum which control the nystagmus and against the Breuer hypothesis of displacement of the cupula. Dr. Shambaugh explains by his theory not only all the phenomena of rotation nystagmus but finds a plausible explanation for the after nystagmus as well as the diminution of the duration of after nystagmus resulting from long continued rotation. A full statement of his theory and deductions will appear later.

DISCUSSION

Dr. Jacques Holinger: The criticism Dr. Holinger has to offer on Dr. Shambaugh's theory is of a teleologic nature. The crista and the cupula consist of soft tissue. It does not seem rational to put a pressure gage, the hairs, between two pillows, the crista and the cupula, since the greater part of the pressure is lost in the soft elasticity of these transmitters. For this purpose one at least of these, either the crista or the cupula, should be hard.

Dr. Shambaugh speaks of the cupula as having a kind of lever action, thus increasing the pressure. A lever must be inflexible otherwise it can not act as a lever, and the cupula is a soft, mushy mass and certainly not fit for such work. Furthermore a lever action implies a motion of the cupula, and it is just *against* this motion that Dr. Shambaugh builds up his theory. Finally it seems to me that the very existence of the cupula is the strongest argument against Dr. Shambaugh's theory. If we wanted to protect the hairs from the pressure of the moving fluid we put just such a soft cap on top of them but if we wanted them to get the full benefit of the pressure we would expose the hairs directly to the impact of the fluid rushing in one direction or the other.

Dr. E. R. Lewis, Dubuque, Ia.: If I understand Dr. Shambaugh's theory correctly it is based upon the conception that the haircells of the crista ampullaris are endowed with differing stimulus abilities, of greater and of lesser influence according to situation, those nearer the utriculus in the crista of the superior canals being of greater influence (or as the Germans say "höherwerthig") than those farther from the utriculus in the same crista; those nearer the utriculus in the crista of the horizontal canals being of lesser influence (or "minderwerthig") than those farther from the utriculus in the same crista. He also contends that cupular pressure rather than endolymph movement is the immediate source of the ciliary irritation which stimulates the haircells. On this understanding I can not explain certain phenomena which are perfectly explained on the theory of the haircells being stimulated by ciliary movement in one direction and depressed by ciliary movement in the opposite direction. For instance, let us express normal tonus impulses in equilibrium as +1, the impulse value of the "minderwerthig" cells of the superior canal crista as +2, and the impulse value of the "höherwerthig" cells of the same crista as +3. If a stream of cold water be allowed to flow into the left external canal while the head is in the upright position nystagmus to the right will develop. According to Dr. Shambaugh's theory the "minderwerthig" cells should be stimulated in the left superior

crista and their impulse value is +2 as compared with the tonus impulse value of +1. As the right horizontal labyrinth has not been influenced artificially it is apparent that its preponderance can be due to tonus impulses only, hence the cold applied to the left side can not have *stimulated* any of the cells, but must have *depressed* their activity. Equilibrium being purely a *relative* condition it matters not whether it is upset by *adding to* the influence of one side or *taking from* the influence of the other. In this case any *additions* must have been made to the side which has been influenced artificially. It is apparent by the nystagmus that no *additional* impulses have emanated from the left side or the nystagmus would have been opposite in direction. We are forced to conclude, therefore, that as the right side has not been stimulated the left side must have been *depressed* by the use of the cold water.

By conceiving a decussation of nerve connections similar to that of the optic tract, the geniculate bodies of one side representing the crista and the retinæ representing the vestibulo-ocular centers, it would be possible to account for what actually does happen in response to this experiment, *on Dr. Shambaugh's theory*. But the conception of any such decussation distribution of nerve connections is impossible in the light of what occurs when the anode is applied. The anodal influence is not *selective*, as is the caloric influence, but affects the *whole* labyrinth simultaneously and similarly. The result of anodal influences applied to the left labyrinth is rotatory nystagmus to the right. Rotation nystagmus to the right may be caused by selective stimulation of the right superior canal endorgans or by stimulation of the haircells of *all* the canals of the right labyrinth at once. Inasmuch as the right side has not been affected artificially in any way in the application of the anode to the left side, we are compelled to fall back upon the tonus impulses in fixing responsibility for predominance of the right labyrinth. *But* we can not accept the theory of decussating nerve connections as set forth in connection with a possible means of applying Dr. Shambaugh's theory to account for the result of caloric experiment, because if the effect of the anode is to *stimulate* the haircells in connection with decussating fibers, cells whose impulse value is represented by +2, the *same* influence must *stimulate* the haircells in connection with non-decussating fibers, cells whose impulse value is +3, and the inevitable result would be preponderance of the *left* side and nystagmus *to the left*. Inasmuch as nystagmus *to the right* develops, it seems to Dr. Lewis that one is forced to conclude it is due to depression of influence of the haircells of the influenced left labyrinth, according to the older theory based upon the works of von Stein, Högyls, Ewald, Barnay, Neumann, Alexander and their school.

As regards Dr. Shambaugh's contention that cupular pressure upon the utricleward side or upon the canalward side of the crista, rather than endolymph movement away from or toward the utriculus, is the immediate source of the irritation of the cilia which results in stimulation of the haircells, it seems to Dr. Lewis an unimportant distinction without a difference to conceive the stimulation of the haircells of the crista to be the result of pressure by the cupula rather than by endolymph currents; in either case the important thing is the same, namely, that the *source of the force* affecting the change in ciliary position, be it by cupula pressure or by endolymph current, *determines the nature of the impulse changes in that labyrinth*, a force exerted *toward* the utricle upsetting vestibular equilibrium in one way, a force exerted *away from* the utricle upsetting equilibrium the other way.

Dr. Shambaugh, in closing, fails to gather from Dr. Lewis' remarks any serious argument against the hypothesis which he has advanced. His discussion regarding caloric stimulation is hardly to the point since the idea has long been discarded that the phenomenon resulting from the injection of cold water into the ear is caused by a depression rather than a stimulation of that ear. Dr. Lewis seems to imagine that a study of the minute anatomic relations in the crista amounts to merely a quibble. A correct conception of the anatomic structures is fundamental in formulating any theory of vestibular stimulation.

As regards the phenomenon of equilibrium and caloric and electrical stimulation, which Dr. Lewis seems to have so much difficulty in accounting for, Dr.

Shambaugh believes these are more readily explained by his theory than by the old hypothesis.

Dr. Holinger seems to think that it is not reasonable to account for the stimulation of the haircells by a pressure of the cupula against the hairs since both the crista and the cupula are soft structures. Dr. Shambaugh can not take the objection seriously since he is willing to accept that the slightest impact of the cupula against the hairs is sufficient to stimulate the cells. Dr. Holinger inquires what the object of the cupula is since the endolymph currents could just as easily affect the hairs if there were no cupula. Dr. Shambaugh replied that whether we can imagine a way by which the haircells might be stimulated in the absence of a cupula has no direct bearing on the problem. The fact remains that the cupula exists and in some way acts as the medium of transferring impulses from the endolymph to the hairs of the haircells. Dr. Shambaugh can see how this pressure of the cupula against the haircells from the impaction of endolymph currents might be increased by the larger surface which the projecting cupula presents for the reception of impaction of endolymph currents.

Regular Meeting, May 16, 1911

A regular meeting of the Chicago Laryngological and Otological Society was held May 16, 1911, with the president, C. M. Robertson, in the chair.

A CASE OF LABYRINTHINE FISTULA IN THE PRESENCE OF A LONG STANDING DESTRUCTION OF THE OPPOSITE LABYRINTH

GEORGE E. SHAMBAUGH, M.D.

The case was a man aged 24 years who had discharging ears since childhood. The right ear had been the seat of a cholesteatoma with acute mastoiditis, for which several operations had been performed five years ago by a general surgeon. Radical mastoid cleared up the disease in the right ear. There appears to be no vestige of function left in the right ear. The tuning forks are lateralized to the left side in the Weber. Caloric responses were absolutely negative for the right ear although the current passed directly into the large opening left by the radical mastoid. The patient experiences periods lasting over a number of days of a pulsating tinnitus in the left ear with a marked diminution in the hearing and associated with marked disturbance of equilibrium and occasional nausea. The handle of the hammer is still present attached to the promontory. In front of this a large opening leads to the attic and posterior an opening toward the antrum. He still hears the conversational voice fairly well in this ear. There is a spontaneous rotary nystagmus to the left. The caloric tests show the characteristic responses: a distinct fine rotary nystagmus to the right on irrigating with cold water; a coarser rotary nystagmus to the left irrigating with hot water. On rotation the horizontal after nystagmus to the left is much more pronounced than the after nystagmus to the right, although the latter is quite distinct but of short duration. Compression of air in the left external meatus produces a very coarse horizontal nystagmus to the left (affected ear). Suction produces a finer horizontal nystagmus to the right.

This case is of special interest because it permits one to perform the classical Ewald experiment on the human ear and study the reaction thus obtained independent of any influences from the opposite side. The case demonstrates very clearly the fallacy of the hypothesis that the stimulation of an ear will always produce nystagmus directed towards that side, and the idea that the reason why certain manipulations of an ear produce nystagmus towards the opposite side is because these manipulations depress the affected ear and permit the tonic impulses from the opposite side to direct the nystagmus towards that side. In this case we have no impulses from the opposite side as this has been long since dead; yet in the caloric tests, in the rotation tests and in the suction in the external meatus we can direct nystagmus to the opposite side. A case with clearly marked fistula symptoms such as this one disproves very positively both the Breuer theory

of nystagmus and the Barany theory. In Breuer's theory he assumes that the continuation of the nystagmus which occurs in the rotation test is occasionel by the continuation of peripheral stimulation. The momentary impaction of endolymph displaces the cupula to one side or the other, the stimulation of the hair-cells continuing until the cupula has been dragged back into its normal position. In a fistula case such as this we produce a current in the endolymph resulting in nystagmus, but the nystagmus ceases immediately upon the cessation of the compression, showing that the displacement of the cupula is not what takes place. Barany places the phenomenon of nystagmus in centers in the cerebellum which are set off by impulses arising from a momentary impact of the endolymph against the crista. The nystagmus lasts until the energy stored up in those centers has been expended. If this theory were true an explosion of these centers by compression of air in the external meatus in cases of fistula would necessarily produce nystagmus lasting for some time. This is not the case; nystagmus in this case ceases immediately upon the cessation of the compression.

EXAMINATION OF THE FUNCTIONS OF THE EAR IN REFERENCE TO THE DIAGNOSIS OF TUMORS OF THE CEREBELLAR PONTINE ANGLE

Dr. J. Holinger

The question of an early operation on tumors of the cerebellar pontine angle depends entirely upon our ability to make an early diagnosis. Many of these patients come first into our offices with general complaints of onesided hard-hearing, noise and dizziness. The diagnosis is shown in four cases. The first one was a patient with all the symptoms well developed. Hearing for loud shouting only, vision of figures only, but otherwise no paralysis; no other symptoms. Several months later the diagnosis was confirmed by operation. In the second case the diagnosis was made nine months before other symptoms, especially the eye symptoms, appeared, and nearly a year before it was confirmed by operation. The third case was a case of gumma which showed the same characteristic functional ear symptoms combined with eye symptoms. The patient was promptly cured with mercury and potassium iodid. The fourth case is still under treatment.

The diagnosis is based on the appearance and the occurrence of increasing of deafness, dizziness, noise, lasting several weeks or months in one ear only, combined with normal appearance of the drum membrane and a free Eustachian tube. Hearing by bone conduction is much more impaired than hearing by air conduction. An a′ or A tuning fork on the mastoid of the affected side or on the vertex is mainly or exclusively heard in the good ear. Hearing of the lowest sounds is less affected than hearing of the highest sounds. The caloric test does not give any characteristic reaction. However, walking and hopping forward and backwards with eyes closed usually gives hints in one way or another.

The tumors of the cerebellar pontine angle are evidently much more frequent than Benninghaus in his text-book of 1906 asserts when he says that only forty cases were recorded up to date. In Chicago alone in a very few years six cases were observed.

DISCUSSION

Dr. Alfred Murray: In Dr. Holinger's second case he mentions the fact that the patient served in the Danish navy, and had his left ear turned toward the gun in firing. There is another factor in the case which might account for a possible traumatic origin of the deafness. About 20 years ago the patient received a blow upon his left occiput by a swinging boom on board ship, which rendered him unconscious for several hours. How much influence this could have had is of course problematical: I mention it merely as a fact in the history. The discovery of his deafness came about in an interesting manner. The patient was accustomed to placing the receiver of the telephone to his right ear, but upon occasion, being obliged to use his right hand for writing, he transferred the receiver to his left ear and found that he was unable to hear. This was the first

intimation he had that the left ear was deaf. The deafness must have been of very gradual development for he is a man of more than average intelligence and certainly would have noticed a rapid impairment of hearing.

This patient consulted Dr. Holinger nine months before his first visit to me. At that time an ophthalmoscopic examination showed no edema of the nerve heads. His vision began to get cloudy at this time but this was shown to be due to presbyopia, as the patient was then 44 years old, and the condition was corrected by lenses. There was also no edema of the nerve heads during the summer following, that is the summer of 1909, the patient having been then examined by an oculist in Valparaiso, Indiana.

He consulted me at the suggestion of Dr. McMichael, on Dec. 17, 1909, on account of failure in his vision which at that time was found to be 20/40 in both eyes, and could not be improved by glasses. Ophthalmoscopic examination showed bilateral choked disc, the right disc being elevated about 4 D. and the left 1 D. On Dec. 22, 1909, the perimeter showed slight irregular contraction of the right field and a practically normal left field.

Suspecting the possibility of a specific cause for the condition, I ordered large ascending doses of K. I., and mercurial inunctions. Four weeks of this treatment seemed to produce no improvement and it was, therefore, discontinued.

On January 3, 1910, the amount of edema was about equal in both eyes, viz. 4 D. By January 10, 1910, the vision of both eyes had begun to get quite cloudy, and on January 17, or one month after the patient's first visit to me, there appeared an absolute central scotoma in the right eye, extending out 15 or 20 degrees from the point of fixation. Dr. D'Orsay Hecht was then called in consultation and diagnosed the condition as tumor of the left cerebello-pontine angle, and advised operation. There was present at this time a decided tendency to fall to the left side when closing the eyes; also a numbness around the left angle of the mouth, and on the left anterior third of the tongue. The reflexes were slightly exaggerated on the left side of the body.

It might be stated here that two of the symptoms so constantly present in brain tumors, namely headache and vomiting, were practically absent throughout the course. The patient had a dull ache back of the left ear, as he expressed it, but at no time was it severe enough to require an opiate. Vomiting was present during the time K. I. was being administered, but ceased upon its withdrawal.

Jan. 12, 1910, or five weeks from the time the patient first consulted me, the right eye was practically blind, the vision of the left eye was rapidly falling, and the left field showed beginning contraction. Five days later Dr. Halstead did a decompression, removing a large portion of the occipital bone, finding it to have undergone considerable pressure absorption on the left side; the dura of that side was bulging as if under much pressure, and was coursed by many dilated vessels. No effort was made at this time to remove the supposed tumor. One week later, however, a second operation was performed, at which time Dr. Halstead found a cyst located at the left cerebello-pontine angle, from which he evacuated 3 or 4 oz. of thin serous fluid, and curetted the walls. The cyst being incorporated in the cerebellar tissue, no effort was made to remove it.

Four days after the second operation there was marked reduction in the edema of the discs, the outlines of which were, however, not yet visible. There were numerous points of exudate and a few hemorrhagic spots around the discs. A few days later the right disc became visible and showed atrophy of the optic nerve; the retinal vessels were contracted. The left disc has never become entirely clear, being covered apparently by unabsorbed exudate.

On July 7, 1910, or five months after operation, the vision with proper correction was: R. 20/30; L. 20/20. This acuity of vision had not been materially lessened at the time of the patient's last visit to me on Feb. 21, 1911, or over a year after operation.

The first field of vision following operative interference was taken two weeks after the second operation. This was very superficially done, owing to the weakened and irritable condition of the patient, but is sufficiently accurate to be

depended upon. It shows slight concentric contraction and a relative central scotoma in the right, and a practically normal white field in the left.

The field of vision taken July 7, 1910, or about five months after operation, shows a condition approaching very nearly the normal, except for a pericentral scotoma in the right field and inversion of colors in both fields.

The last field of vision, taken on Feb. 21, 1911, or more than a year after operation, does not differ materially from that taken seven months before, except in one or two particulars; principally interlacing of color fields. This calls to my mind a very interesting feature of the case. Interlacing and inversion of the color fields is not of uncommon occurrence preceding operative interference, but in this case, strange to say, these phenomena did not develop until several months after operation, and could not then be accounted for by a return of pressure, for there are, even now, absolutely no symptoms indicative of a relapse.

In this very interesting case the patient was doomed not only to total blindness, which was rapidly approaching, but also to certain death; whereas now, one year after operation, his vision, with appropriate lenses, is almost normal. He is able to take active part in public life, and carry on his business affairs practically as well as ever before. His chief incapacity is in doing any heavy lifting or hard physical labor. There is a moderate hernia cerebri, but the patient does not find it necessary to wear any protection. The impression gained from his general appearance and from conversation with him is that he is a perfectly healthy man, physically and mentally.

The case brings out a number of valuable points in diagnosis from the standpoint of the aurist, neurologist and ophthalmologist, and shows the brilliant results which can be obtained through operative interference.

Dr. Geo. E. Shambaugh: Dr. Shambaugh does not think Dr. Holinger made it quite clear regarding the loss of bone conduction in cases of unilateral tumors. As long as the opposite ear is normal the difference in bone conduction from one part of the head or another is very slight and usually one can hardly speak of a diminution of bone conduction in unilateral nerve deafness. Dr. Shambaugh recalls a case reported at the American Otological several years ago where there was nerve deafness and the Weber lateralized distinctly to the affected ear, and where the post-mortem disclosed tumor in the internal meatus.

THE RELATIONS OF THE INTERNAL CAROTIDS AND OPTIC COMMISSURE TO THE PITUITARY BODY

Dr. O. H. Maclay

Since the intranasal route operation can be done for partial removal of the pituitary body, it is well to know the dangers of this region. The structures in the immediate neighborhood are the internal carotids, cavernous sinuses and optic commissure, separated by only a few millimeters. Pathology may render the intranasal route safer than it appears to be in the normal, that is, structures may be pushed aside, but the cavernous sinuses still remain. The changes in the shape of the sphenoid bone cause considerable difference in the relations of the parts. Average of intercarotid measurements, from examination of fourteen heads, 9.2 mm. Breadth of sella turcica taken at widest part gives an average of 11.4 mm. Average length of anterior wall of pituitary fossa, which is the part of the sella turcica that must be penetrated in order to gain entrance to fossa, from forty-two measurements, is 7.6 mm. This wall may be very thick or very thin, depending on the presence or absence of large sphenoidal sinuses. The greatest length may give the most shallow fossa. According to depth of fossa, three types are described: the deep cup-like, the shallow trough-like and the one representing the average.

DISCUSSION

Dr. George E. Shambaugh: This careful anatomic work by Dr. Maclay on the relations about the sphenoidal sinuses is very timely. The interest of the profession toward tumors of the hypophysis and the fact that the intranasal route

for the removal of these tumors is a feasible one, is going to result in a great many operations undertaken through the nose on the sphenoidal sinuses. It is extremely improbable that everyone that undertakes this work should have the anatomic facts which Dr. Maclay has brought out clearly in mind. It seems extremely desirable in the narrow confines that one should always perforate the roof of the sphenoidal sinuses as near the median line as possible. It would seem that a good deal of difficulty would be experienced in knowing when one is working on the median line. The septum is not a reliable landmark. In my preparations the sphenoidal sinuses show greater variations in the relative size of the two sides than any other of the nasal sinuses, and this difference is usually the result of a septum displaced laterally.

Dr. Holinger: Dr. Maclay certainly obtained valuable data in studying the normal anatomy of the sella turcica, but a pathologic anatomy would be of still greater value for the operation of the tumors of the hypophysis. The important question would be, do any of these tumors occur in the shallow variety of the saddle, and in which direction do such tumors grow? Or do the tumors only occur in deep saddles and do they mostly grow downward, thus encroaching on the sphenoidal sinus, making the operation from the nose so much easier and less dangerous? A comparison of the *x*-ray pictures of the different cases so far as reported would answer these questions.

Dr. George McBean: Dr. McBean was asked to speak of two cases that had been under his care. The first was a spontaneous hemorrhage from the right sphenoidal sinus in a young woman who had had no previous nasal treatment. The bleeding was so profuse that Dr. McBean was unable to locate its source except that it was in the upper back part of the nose. He packed the nose after Freer's method, but was unable to control all the bleeding. They finally exposed both internal carotids, but pressure on neither one controlled the hemorrhage, and they did not dare to compress both. The patient finally died, and the autopsy showed necrosis of the external lateral wall of the right sphenoidal sinus and rupture of the internal carotid artery.

The second case is one of tumor of the hypophysis cerebri in a young woman who came to Dr. McBean a year ago complaining of diplopia and beginning failure of vision. He found trouble in the right sphenoidal sinus, removed the middle turbinal and opened the sinus. He found it packed with a mass resembling polypoid tissue. He curetted out as much tissue as possible and the diplopia and vision improved in a few days. The sinus appeared excessively deep and rapidly refilled with tissue.

Dr. Shambaugh saw her at this time with Dr. McBean, but further operation was refused because the diplopia and beginning failure of vision for which she first consulted Dr. McBean had improved, although she had bilateral papillitis. She left the city in June and did not return until February, 1911. By this time her vision had failed so far that her family consented to further operation. Dr. McBean had skiagrams made by Dr. Reichman and Dr. Oliver, and they both show a very greatly enlarged sella turcica. Dr. Grinker also saw the patient with Dr. McBean and corroborated the diagnosis of a growth in the region of the hypophysis with extension into the sphenoidal sinus, as Dr. Pierce so beautifully showed in his plates at the meeting two months ago. Dr. McBean sent the patient to Dr. Harvey Cushing, who operated by the sublateral trans-septal route on April 20. She made an uneventful recovery, but the vision is very poor. The disk is choked in both eyes and there is also primary optic atrophy, so much improvement is not expected.

A DEMONSTRATION OF MICROSCOPIC SLIDES

NORVAL E. PIERCE

1. Fibroma of the nasal pharynx.
2. Tumor from the region of the sphenoid (doubtful diagnosis).

Dr. Lorenzo Grosvenor: Tumors of nasal cavities.

CHICAGO OPHTHALMOLOGICAL SOCIETY

A regular meeting was held Dec. 19, 1910, with the President, Dr. W. A. Fisher, in the chair.

A CASE OF SO-CALLED BOTTLE-MAKER'S CATARACT

Dr. Robert von Der Heydt reported the case of a baker who, after years of exposure to the heat of the oven, developed what has been described in the literature as a case of bottle-maker's cataract.

DISCUSSION

Dr. H. S. Gradle said that Birch-Hirschfeld had come to the conclusion that bottle-maker's cataract was caused by the ultra-violet rays and that heat had nothing at all to do with it.

Dr. von Der Heydt called attention to the fact that Birch-Hirschfeld's experiments were conducted on rabbits and that heat was eliminated. The eyes were exposed to light only. The cataract was developed in one minute. In bottle-maker's cataract the eye is exposed to heat for many years; Parsons' patient was exposed for twenty-four years. Other experimenters have produced retinitis and conjunctivitis by irritation, but in these cases light had nothing to do with it.

TRANSPLANTATION OF SKIN FOR PTERYGIUM

Dr. Clark W. Hawley presented a case illustrating the transplantation of a piece of skin on the eyeball to prevent the return of a pterygium. The pterygium is first dissected from the cornea, being careful to stop where the conjunctiva and the cornea unite. Then, by slightly undermining the pterygium, it will recede, leaving the sclera exposed. From behind the ear a very thin piece of skin is shaved off and trimmed while on the razor to the desired size. This piece of skin must be just as thin as it is possible to cut it, otherwise there will be trouble afterward. The piece is then floated from the razor directly on the uncovered sclera. Then two stitches are passed through at each posterior cornu of the graft, upward and backward, anchoring it to the conjunctiva so that the pterygium cannot push it forward onto the uncovered corneal wound. This is the most difficult part of the operation, but so far has been necessary. I believe I have solved the problem in another way which will eliminate these two stitches, making the operation exceedingly easy, whereas now it is rather difficult. In time the graft disappears, the cornea has time to regenerate itself and become absolutely transparent.

DIVERGENT STRABISMUS CURED BY TENDON TUCKING

Dr. H. W. Woodruff, Joliet, reported the case of a man, aged 28, who had a divergent strabismus of 65 degrees which was cured by tucking of both internal recti muscles with tenotomies of both external recti muscles. Before operation the left eye showed a divergence of 65 degrees. After operation there was only 15 degrees of divergence, but the patient was annoyed by diplopia. Tucking of the right internus and tenotomy of the right externus resulted in binocular single vision with some exophoria.

DISCUSSION

Dr. Clark W. Hawley has done a simple tenotomy of the external rectus which secured binocular vision. The patient had had divergent strabismus as long as she could remember. With a little care he obtained fusion as well.

Dr. W. H. Wilder asked how much folding had to be done to get such a good result, and whether he had to go back of the muscle fibers themselves to secure enough of a fold.

Dr. Woodruff (closing) said that he has been doing this operation for about eight years, but he cannot tell accurately just the degree of result he can obtain. In the case reported he went back as far as he could on the extrnal rectus because

of the extreme degree of divergence, but he could not state the number of millimeters. He used the Worth suture except that he did not include the conjunctiva or capsule. That is the particularly commendable feature of the Worth operation. There is no slipping up on the fibers.

Dr. W. A. Fisher asked whether it would not be a good plan to insert the stitches as far back as possible and then not pull up so hard on them?

Dr. Woodruff, in a moderate degree of strabismus, would do the tucking first and then the tenotomy, partial or complete, as might be indicated, in convergent strabismus a slight under effect and in divergent strabismus a slight over effect. He regulates this by the tenotomy on the opposing muscle.

SOME OBSERVATIONS ON THE USE OF THE TONOMETER

Walter Parker, M.D., Ann Arbor, Mich.

DISCUSSION

Dr. E. V. L. Brown has been using the Schiotz instrument for several years and would be lost without it. He has found a number of tensions in the neighborhood of one hundred and one tension as low as five. The highest normal tension was 27; the lowest 12. He called attention to an article by Schirmer on the use of the tonometer in iridocyclititis, in which he states that low tension is a constant symptom of this disease. Even after the disappearance of all symptoms the tension will often remain low for as long a period as months. He recently had a case of papular syphilide with iritis in which the question arose as to whether the ciliary body was involved. The tension in this eye was 5, and is still low, although the patient has excellent vision. It is a case of recurring iridocyclitis.

Dr. H. S. Gradle said that in the instrument devised by his father the stylet does not fall out, which is an essential objection to the Schiotz instrument. It necessitates sterilization of the stylet and often the plating is damaged so that the stylet is roughened and may cause an injury of the cornea. The relationship between tension and blood pressure, he said, is worked out by Kramer. He examined the blood-pressure in all his eye cases and found that in every case it was low when the tension was high.

Dr. M. N. Black, Milwaukee, asked whether the objection to the instruments stated by Dr. Parker, abrading the cornea, could not be overcome by applying cocain solution or an oily collyrium to the eye?

Dr. W. H. Wilder said that a well standardized and convenient tonometer would be a very valuable aid in this work. The Schiotz instrument seems to be more accurate than any other. There are so many problems that might be taken up in connection with this. For instance, the effect on the eye with increased tension; whether we could quickly decrease the tension by means of massage, which is frequently employed successfully in cases of acute glaucoma. He thought that such an instrument as a tonometer would amply repay one for time and money spent if it will accurately and quickly determine the degree of tension, more so than can be done by the simpler method of estimating tension with the tactile sense. There is so much difference of opinion in the degree of tension observed. Weeks, of New York, claims to detect with the finger a three-fourths of one tension. He thought it required much experience to become expert in taking the tension of an eye. He feared that when this mechanical means became perfected there would be a neglect to develop the tactile sense for determining tension of the eye.

Dr. Parker said that a single application of cocain for a minute would enable one to make an examination without any difficulty. When there is much spasm of the orbicularis he would not persist in the use of the instrument. He thought, however, that free use should be made of any mechanical apparatus which would enable one to do better work.

Dr. Wilder inquired whether Dr. Parker had observed any increase in tension following the instillation of cocain. It has been stated, he said, that it is dangerous to use cocain in eyes that have a tendency to glaucoma.

Dr. Parker (closing) has not had any experience in this direction. He has noticed a difference in the tension of the eyeball after the tonometer has been used for some time, but he has not had any experience with the instrument after the use of drugs.

A SIMPLE OPERATION FOR CATARACT. AN ILLUSTRATED REPORT OF THE OPERATION AS PERFORMED AT THE JULLUNDUR CLINIC

DERRICK T. VAIL, M.D., CINCINNATI

Dr. Derrick T. Vail, Cincinnati (by invitation), presented his paper, which was a descriptive and illustrated article of eighty-one pages, written during a visit to Smith's Clinic at Jullundur, Punjab, India, in September, October and November, 1909. The article was in book form in the nature of a special souvenir edition, a copy of which was presented to each member present. He said Smith used no instruments of precision in diagnosing all kinds of new cases which come to his clinic for operation. He relies solely on the senses of sight and touch, acting on the principle that there is no disease of the eye which does not express itself objectively, and that a keen, accurate and well-informed surgeon can diagnose operable cataracts by his unaided senses.

Post-operative infection among over a thousand cases was so rarely present (two cases) that Vail could only attribute its rare occurrence to Smith's manner of preparing the field for operation. The "Jullundur speculum" is introduced and the lids held forcibly away from the ball at the same time the brow and tissues of the orbit above the eye are forcibly retracted by the fingers of the unoccupied hand, thus exposing the entire conjunctival sac for douching with 1:2000 bichlorid solution, which is sent in the conjunctival sac with gravity force in a half-inch stream.

The incision is purely corneal, being begun in the exact horizontal meridian at the limbus. The edge of the knife is held at an angle of 20° to 30° in relation to the plane of the iris. In one-third of the cases the cut is made with one forward sweep of the knife; in two-thirds of the cases completed with a return stroke, cutting as nearly vertically to the corneal layer as possible, and coming out two or three millimeters below the upper limbus. The iridectomy is done by pressing the iris up in the incision by external manipulation with the lower blade of the iris forceps and it is cut with ordinary iris scissors. A small iridectomy is always attempted.

The assistant now holds the upper lid away from the ball on Smith's lid hook held in the first finger and thumb of his right hand. With the extended fingers of the same hand the eyebrow is forcibly retracted to guard against the patient squeezing his eye. The lower lid is held with the flexed thumb of his left hand.

The operator now expresses the lens, using the bulbous end of Smith's lens hook applied to one spot midway between the lower margin of the pupil and the lower periphery of the iris, making deep pressure back toward the optic nerve and shifting the pressure as indicated by the behavior of the lens. In about one-fourth of the cases the lens turns within the eye and the lower edge ascends to come out of the incision first. This is favored by the operator making traction with his hook away from the incision or toward the patient's feet. As soon as the lens is about to escape through the incision, gentle upward manipulation is used to tuck the cornea behind it and the lens is then gently raked out of the wound by means of the hollow of the hook.

In two-thirds of the cases the lens starts to come upright. The operator will favor its upright delivery by following it up and at the same time tucking the cornea behind it. The iris is replaced at once by the iris repositor, the end of which is made to glide along under the scleral shelf of the wound between the cut

apron of iris and the cornea. The whole operation is usually done in less than five minutes' time. There is a minimum of traumatism and instrumentation.

The results in Jullundur were surprisingly beautiful and uniform, after-complications being the great exception.

Dr. Vail devoted his time while there to learning every minute detail of Smith's technic and he offered no improvements, modifications or suggestions, taking it for granted that the profession desired to know exactly how Smith operates in his own clinic.

Dr. D. W. Greene, Dayton, Ohio, complimented Dr. Vail on his paper and particularly on the illustrations which he had made. He knew that his book had been delayed about three years because Lieut. Col. Smith did not have a man competent to illustrate his operation until Dr. Vail arrived. Smith has frequently described the operation, but could not get it illustrated, therefore it has been imperfectly understood. In relation to the Jullundur speculum, Dr. Greene does not know who devised it. Smith does not claim it; they were made for us by a native in the Bazaar and with the two hooks and spatula made of *coin silver* cost about $2.50 in India. The set costs $10.00 in this country. As to the douche with which the eye is flushed, reference to Colonel Herbert's book on "Cataract Extraction" will show that he speaks very favorably of the value of bichlorid in 1:2000 solution as an antiseptic. In India 75 per cent. of the people have trachoma, so that when the eye is flushed with this solution, germ growth is inhibited long enough for the section to heal. If it heals promptly, there is no infection.

In about 1,200 operations, during our visit at Jullundur, there were only four cases of infection. I have never equaled this record and I doubt very much whether it has been equaled in America. In Moorfield Hospital, in London, I have been informed by one of our members this evening, that there were three cases of infection in one hundred operations when he was there.

Dr. Vail, he said, spoke of Major Smith's stepping to the left side of the patient when he operates on the left eye; he does that because he believes in giving the patient the benefit of his best hand. Smith says no matter how ambidextrous a man may be, he is not equally skillful with each hand. There is no section in the world to compare with the Jullundur section, for intra-capsular delivery in persons under 65 years of age. But being a corneal section he thought that in the case of patients 70 years old and over it is better to make the enlarged circular marginal section of De Wecker. The advantage of that section is that it is nearer the vascular circulation of the limbus, although it is not so well located for delivering the lens as is the Jullundur corneal section.

FULTON COUNTY.

Fourteenth Annual Meeting, Canton, Ill., Oct. 3, 1911

The fourteenth annual meeting of the Fulton County Medical Society was called to order by President Coleman at 1:30 p. m. in the Elks Parlors.

The secretary not being present the reading of the minutes of the preceding meeting was on motion postponed until the next meeting. Drs. Regan and Scholes as auditing committee reported that they had examined the treasurer's books and found them correct. Report adopted. Treasurer's report shows collections during the year amounting to $285.75 and expenditures $288.41.

The following officers were elected: President, Dr. Veda C. Murphy, Cuba; first vice-president, Dr. D. D. Kirby, Canton; second vice-president, Dr. C. D. Snively, Ipava; secretary-treasurer, Dr. D. S. Ray, Cuba; necrologist, Dr. P. H. Stoops, Ipava; membership committee, Dr. L. R. Chapin, Canton; member of board of censors, Dr. J. W. Connelly, Farmington; delegate to State meeting, Dr. D. S. Ray, Cuba; alternate to state meeting, Dr. P. H. Stoops, Ipava; member of legislative committee, Dr. F. C. Robb, Farmington. The following names were presented for membership and referred to the membership committee, Drs. W. W.

Johnston, of St. David, John A. Logan of Canton, E. G. Davis of Lewiston, A. B. Taylor of Fiatt, and John R. Hinde of Lewiston. On motion the rules were suspended and the membership committee was ordered to report on the applications at this meeting. The committee made a favorable report and the secretary was on motion ordered to cast the vote of the members present electing the applicants to membership, which being done the chair declared them duly elected.

Dr. Wm. Cubbins of Chicago gave a very interesting demonstration of "Intestinal Suturing." Dr. Allen B. Kanavel of Chicago gave an excellent demonstration of "Abdominal Diagnosis." "Some of the Present Day Problems of the Profession in Illinois" was presented by Dr. J. F. Percy of Galesburg and was discussed by several. Drs. Baxter and Shallenberger moved a vote of thanks to Dr. Percy for his paper. Carrried.

At 6 p. m. dinner was served to seventy-six physicians and wives in the Elks' banquet room. At the close of the dinner Dr. Nelson as toastmaster introduced Dr. Stoops who gave the toast "To Our Guests." Response by Drs. Kanavel, Cubbins and Percy.

Dr. C. B. Horrell of Galesburg showed "Why the Physician Should Look on the Bright Side," and President Murphy gave "The Doctor in His Airship."

At 8 p. m. Dr. Kanavel gave a lantern demonstration of "Goitre" to a large crowd. The public had been invited to this demonstration and more came than could be accommodated. A unanimous vote of thanks was given Drs. Kanavel and Cubbins. Those present were: Drs. Wm. Cubbins and A. B. Kanavel, of Chicago; Drs. J. F. Percy and G. B. Horrell, of Galesburg; Drs. E. W. Oliver, of Peoria; J. E. Sutton, of Port Orchard, Wash.; Veda C. Murphy, Jennie W. Parks, Maud T. Rogers, J. E. Coleman, I. L. Beatty, J. A. Logan, D. W. Bottorf, E. M. Price, A. J. Baxter, P. S. Scholes, R. W. Harrod, A. P. Standard, E. E. Davis, E. S. Parker, H. C. Putnam, H. H. Rogers, P. H. Stoops, L. R. Chapin, W. E. Shallenberger, C. N. Allison, J. C. Simmons, N. W. Miller, C. D. Snively, C. E. Howard, A. C. Cluts, R. P. Grimm, E. G. Davis, W. D. Nelson, Jr., L. V. Boynton, J. M. Adams, D. D. Kirby, S. A. Oren, E. W., Regan, D. S. Ray, W. W. Johnston.

Collections, $93.50. D. S. RAY, Secretary.

JACKSON COUNTY

The September meeting of the Jackson County Medical Society was held in the parlors of the Jackson Club at Murphysboro, Thursday, Sept. 21, 1911. The committee appointed to investigate the case of Haskell, the magnetic healer, reported that he had been properly handled by the courts and had left for parts unknown. A motion was made and carried that the 1912 meetings of the society be held monthly on the third Thursday, and further, that the programs for succeeding meetings be decided on at each meeting.

Dr. O. B. Ormsby spoke of the three methods of dressing wounds, dry, ointment, wet. Discussion.

Dr. C. C. Molz reported a death following an anesthetic in which the postmortem findings showed a fatty degeneration of all organs. Discussion.

Dr. H. G. Horstman spoke of "When and How to Use the Forceps in Obstetrics."

Adjourned. RAY B. ESSICK, Secretary-Treasurer.

JO DAVIESS COUNTY.

The Jo Daviess County Medical Society met in the parlors of the Ray Hotel, Stockton, Ill., at 1 p. m., Thursday, Oct. 5, 1911. After the roll call and the regular routine of business the program for the day was taken up. Two essayists being absent, the paper entitled "Gastric Disorders Although Not Gastric Disease," was read by Dr. D. G. Smith, of Elizabeth. This paper brought out quite a heated discussion and many valuable points were presented, everyone present giving his personal experience. Every one present was well rapaid for his time.

spent; the only loosers were those who were absent. It is hoped that every member will avail himself in the future of these educational feasts, and thereby give his patrons that which they are justly entitled to. An elegant repast was served in the dining room at 5 o'clock which was an honor to the Stockton Division. The Society adjourned to meet at Warren in January, 1912.

D. G. Smith, Reporter.

LAKE COUNTY

A meeting of the Lake County Medical Society was held at Dr. Taylor's office, Libertyville, Tuesday, Oct. 3, 1911. This was a joint meeting of doctors and dentists and in the absence of the president and vice-president of the Lake County Medical Society, it was moved and carried that Dr. E. V. Smith be elected chairman for the meeting. The secretary's report was read and approved. The resolutions of the American Medical Association were read but laid on the table for consideration until our next meeting. The very bad weather kept away most of the physicians and dentists but 16 were present and the following program was rendered: "Cases in Which the Dentists Need the Assistance of a Physician," by Dr. W. S. Bellows. This paper started a warm discussion on the subject of pyorrhea which was of value to both dentists and physicians. The next subject on the program was a paper read by Dr. E. A. Crane on "Oral Hygiene." This was a most excellent paper and following its reading it was moved and carried that the Lake County Medical Society offer this paper to go with the lecture given last fall by Dr. Bergen on "School Hygiene," and that the secretary furnish the county superintendent of schools with copies for the use of the teachers throughout the county.

Following this Dr. Crane demonstrated the proper use of the tooth brush and a very profitable discussion on the subject of "Oral Hygiene" followed. It was moved and carried that the Lake County Medical Society make it a point to have at least one meeting a year with the dentists. The meeting adjourned to the dinner which was being prepared for us, after which they spent a few hours in bowling and billiards to the great pleasure of all present.

W. H. Watterson, Secretary.

MADISON COUNTY

The Madison County Medical Society met at 2 p. m., October 6, at Edwardsville, with President Dr. W. H. C. Smith in the chair. Present: Drs. Ferguson, Burroughs, Hirsch, Barnsback, Kerchner, Oliver, Riley, Moore, Schreifels, Schmidt, Gwynn, Hastings, Robinson, Smith, W. H. Grayson, J. H. Fiegenbaum, Pogue, Cook, Dorr, Wedig, Wahl, Braner, Binney and E. W. Fiegenbaum. Visitors: Dr. W. K. Newcomb of Champaign, Dr. W. R. Mangum of Maryville, and Rev. C. W. Sydman of Troy.

On motion of Dr. E. A. Cook it was ordered that any physician residing in the county, who has been in active practice for 40 years or more, be admitted by application, as an honorary member of this society without payment of dues.

Dr. W. K. Newcomb, president of the state society, read a paper on "Some Forgotten Features of Medical Progress," which was received with much interest. Among other things he said:

The methods which were necessarily employed by the old doctors were now superseded by the mechanical appliances which give greater scope to the efforts of the present day physician. Along this line he dwelt at some length on the phenomena of loss of business sometimes experienced in the case of the older physician, and which is occasionally hard to account for.

A strong point brought out was the necessity for reciprocity. The doctor called attention to the fact that each state has its regulations for the practice of medicine, and that many of them do not recognize the rules of others, so that a physician from Illinois, no matter how eminent he might be in his profession,

would not be permitted to treat a cold for some one in some other state where he might be at the time.

He cited the instance of a professor from the Illinois University who went to Canada for his health. He wished to occupy at least a portion of his time with practice of his profession, but found that he would have to take an examination, the same as one who had never practiced. Then he found that twenty years devoted to medicine did not enable him to readily answer some of the technical catch questions that were asked and although regarded as a learned man in Illinois he failed in the examination and had to go to raising wheat.

An Illinois physician desiring to locate in Texas could not go direct, but took a roundabout course. He found that Iowa recognized Illinois certificates, that Arkansas accepted Iowa papers, and that Texas had fraternal relations with Arkansas. So he went from state to state, depositing one certificate and taking up another, until he reached Texas. He could not have gone there direct. This, the doctor pointed out, is foolish, and he advocated proper rules of examination in all states and then an interchange of papers when desired.

On the subject of the division of fees he noted that the doctors in the country were getting in some instance a "rake off" from the city specialist. He said that the country doctor with an intricate case would send the patient to some specialist, who would charge an exorbitant fee and send a portion of it to the country doctor as his commission on the business. Such a practice would naturally induce the country doctor to send the patient not to the most learned man, but to the one who was willing to slip the first physician the largest fee. Dr. Newcomb declared that this did not often happen, but that there were well authenticated instances.

On motion of Dr. Schreifels a rising vote of thanks was tendered to our distinguished visitor for his efforts. On motion adjourned to meet in November in Granite City.

M'LEAN COUNTY

The McLean County Medical Society held its meeting in the Council Chambers, Bloomington, Ill., September 7. On invitation of the program committee Dr. Carl E. Black, of Jacksonville, Ill., was a guest of the society. After a pleasant 6 o'clock dinner at the Illinois with some of the members, the meeting was called to order in the council chambers by the president, Dr. R. A. Noble. After a short business session Dr. Black read a very interesting paper on "The Medical Library and the Card Index System."

The doctor laid a special emphasis on the necessity of higher medical education, the medical society as the post-graduate school for the busy practitioner, and the necessity of such a school being equipped with a greater library than any one member could afford; hence the necessity of the members cooperating in establishing a public library. By the aid of the stereopticon he illustrated the Dewey Card Index System for the classification of subjects, giving us a foundation on which to establish a library with subjects so indexed as to make it a ready reference. The paper was given at an opportune time as Bloomington is surely in need of such a library, the subject was ably handled, and we hope it will be the beginning of better things in our society.

The last regular meeting of the McLean County Medical Society was held in the council chambers, Bloomington, Ill., Oct. 5, 1911, the president, Dr. R. A. Noble, presiding. At the business session the resolution looking toward the extension of our organization to the A. M. A. was indorsed.

Drs. Bath and Copenhaver, the essayists of the evening, were both absent but Dr. Bath's paper on "Technique in Abdominal Supra-Vaginal Hysterectomy With Reference to Avoiding Hemorrhage and Ureters," was ably read by Dr. H. H. Griffin, who had drawn illustrations showing the anatomical relations of the blood-supply and ureters. The paper was well received by the society, but as the author was not present was little discussed. T. D. CANTRELL, Secretary.

MONTGOMERY COUNTY

The Montgomery County Medical Society met in the rooms of the Young Men's Club at Nokomis at 8 p. m., Tuesday, Sept. 5, 1911. The meeting was called to order by President P. M. Kelly, and the following were in attendance: Drs. A. E. Burwell, J. S. Archibald, W. H. Geddy, W. A. Hodges, W. C. Hovey, G. S. Wilson, I. G. Hubbard, C. H. Lockhart, Z. V. Kimball, M. W. Snell and H. F. Bennett.

The committee appointed at the Raymond meeting to revise the fee bill and to suggest a cooperative plan for collections, submitted the following resolutions:

Resolved, That each physician in the county shall render statements regularly to each patient within three months after services have been rendered, then statements shall be sent every thirty days for two months, or until two subsequent statements have been sent, when, if no provisions have been made for adjusting accounts, the bill shall be given to a collector, and the name of such persons shall be reported into the physicians' delinquent list; and be it further

Resolved, That a copy of the Physicians' Delinquent List be furnished to each physician of the county who desires it, with recommendation that no further credit be extended to such delinquents until they have made satisfactory settlement with the physician or physicians with whom they are delinquent; be it also

Resolved, That it is deemed advisable that the Montgomery County Medical Society should adopt a Business Bureau, consisting of five members, the same to be elected one each from Litchfield, Hillsboro, Nokomis and Raymond, and the chairman of the county society shall be a member and chairman *ex officio* of the bureau. It shall be the duty of each member of said bureau to keep a list of all delinquents in his district reported to him and to furnish a copy of same to the chairman of the bureau, the said chairman to keep a list of same open to all physicians of the county; be it further

Resolved, That the following fee-bill be adopted and adhered to by all members of the Montgomery County Medical Society and recommend the same as the official fee-bill for all physicians of Montgomery County.

Rate charged for professional services adopted by Montgomery County Medical Society:

Office fee (minimum charge), $1.
Visits within city limits (daytime), $1.50.
Visits within city limits (at night), $2.
Visits in country (daytime), 50 cents per mile, plus $1.50.
Visits in country (at night), 75 cents per mile, plus $2.
Consultation fee (mileage as above extra), minimum, $5.
Obstetric cases (uncomplicated), mileage extra, $15.
When complications exist, extra, according to nature of complications.
Surgical cases (requiring anesthetic), $10 and up.
Anesthetic (administered anywhere), minimum, $5.

The applications for membership of Drs. I. G. Hubbard, Jr., and W. B. Kilton of Harvel were presented and referred to the board of censors, for action at the annual meeting.

Meeting adjourned.

After the adjournment, the members present were the guests at a banquet given by the Nokomis fraternity, which was a most enjoyable affair and lasted until after midnight.

ROCK ISLAND COUNTY

The mid-summer meeting of the Rock Island County Medical Society was held at the Watch Tower Inn, August 8, 1911. After supper the business session was held. Minutes of the June meeting were read and approved. The report of Dr. J. R. Hollowbush, delegate to the Aurora State Meeting, was presented. President Eddy reported on the resignations of Drs. Gardner and Meyer of Moline. As these members declined to reconsider their action, their resignations

were ordered accepted. Bills from the Manufacturer's Hotel, Driffel Printing Co., and Watch Tower Park Co. were allowed. Dr. H. M. Stowe, of Chicago, then read a paper on Rupture of the Parturient Uterus. The discussion, which was opened by Dr. W. L. Allen, of Davenport, Ia., was participated in by Drs. Eddy, Ludewig, Williams, and Hollowbush. Dr. Stowe exhibited models, made by himself, of plasticine in explanation of his paper, which proved to be very interesting and was enjoyed by all. Present: Drs. Eddy, Chapman, Love, Snively, Ludewig, Williams, Souders, Hollowbush, Foster, Craig, Lamping, Comegys, Mueller. Guests: Dr. H. M. Stowe, Chicago; Dr. W. L. Allen, Davenport, Ia.

ALBERT N. MUELLER, Secretary.

SANGAMON COUNTY

The regular meeting of the Sangamon County Medical Society was held in Lincoln Library, Springfield, October 9, George F. Stericker, president, in the chair. Dr. C. U. Collins of Peoria was the essayist of the evening, and presented a valuable paper on "Nitrous Oxid Gas Anesthesia." Dr. Collins has for some months used this gas exclusively as an anesthetic, preceding its administration by the hypodermic use of morphia and scopolamin. He has installed a plant for manufacturing the gas, and this besides furnishing the material at a low cost, assures the administration of fresh gas. The gas has absolutely no deleterious effects on the tissues; there is no vomiting after its use; the patient rapidly recovers consciousness, and does not dread the repetition of the anesthetic. The paper was discussed by Drs. Kreider, Munson, Donelan and others. Dr. A. L. Brittin of Athens related a clinical case of early operation after an abdominal injury. Drs. Kreider and Bain presented *x*-ray photographs of fractured bones in which the Lane bone plate had been used successfully.

The meeting adjourned to the annual November meeting and banquet which will be held at the Leland Hotel November 13.

ST. CLAIR COUNTY

On Thursday, October 4, the St. Clair County Medical Society met in regular session at Edgemont in a hall provided by Mr. Philip Traband. The meeting was called to order at 3:45 p. m., by Dr. Otrich, vice-president. The minutes of the previous meeting were read and ordered adopted as read. Dr. Auten of Belleville presented a woman, aged 36 years, whose faucial tonsils had been misplaced to the posterior and lateral aspect of the tongue. The tonsils were large, of a bluish cast and showed crypts, which in some instances were filled with plugs of detritus. Between the pillars of the fauces no tonsillar tissue could be detected. There were several plaques of lymphoid tissue on the anterior portion of the tongue. Sections were taken from several areas for examination but no report from the pathologist had been received. The mother died of cancer of the breast last year.

The fact that many of our members were in arrears was mentioned, upon which Dr. Lillie moved that the treasurer advise every such member of his standing in the society, and if by Nov. 1, 1911, all dues are not paid, each man in arrears shall have his name stricken from the roll, and the officers of the State Society shall be immediately notified. The motion was seconded by Dr. Hansing and carried unanimously. In the absence of the entire board of censors, a temporary board consisting of Drs. Miller, Fairbrother and Lillie, was appointed to act on the application of Dr. A. L. Barton of Caseyville, Ill., for membership. The board reported favorably and moved that the secretary be ordered to cast the ballot of the society for the admission of Dr. Barton to its ranks. This was duly done.

Scientific Program: Dr. B. Twitchel of Belleville was to read a paper on "Sporotrichosis," but failed to attend the meeting. Dr. M. F. Engman of St. Louis

was then introduced, and after distributing pamphlets containing the fifth annual report of the Barnard Free Skin and Cancer Hospital, gave us a most interesting talk. He gave the history of the origin and development of the above named hospital and then branched out into the subject of carcinoma. He startled the members with the statement that one in twelve women and one in fifteen men past the age of 35 years were afflicted with cancer. He cited numerous experiments made at the hospital in mice and rats which showed that the virus of cancer could be attenuated or made more virulent by passing through different species. Dr. Engman felt certain that the numerous studies on cancer at the present time would lead to something very valuable in the near future. He had no treatment to offer except radical and, more important, clean surgery. In epithelioma of the face *x*-ray and thermo-cautery were very useful. On conclusion of the discussion of Dr. Engman's lecture Dr. Lillie moved that he be given a vote of thanks, and be asked to appear again, and bring Dr. Loeb with him to give us more of the detail of their work. The motion was seconded and unanimously carried.

Dr. Lillie, the chairman, read the report of the committee on revision of by-laws. Dr. Zimmermann objected to the words "reasonable fee bill" in one of the sections relative to corporation work, on the grounds that the word reasonable would always give room for argument. Dr. Hansing moved that the words "reasonable compensation" be substituted for reasonable fee bill. This motion was seconded and carried.

Dr. Zimmermann objected to article VII, section three, according to which every essayist was compelled to deliver his paper to the secretary of our society; and moved that the reading be changed to mean that essayists reading papers before our society shall be asked for a copy of such paper that it might be preserved in our files. This motion was seconded by Dr. Hansing, and carried.

The constitution and by-laws with changes above mentioned inserted was voted upon and unanimously accepted. The society then adjourned to a neighboring room where a very fine lunch was served by Mr. Traband. The secretary was asked by several members to express the thanks of the society to our host which was done. At 6 p. m. we stood adjourned to January, 1912. Present: Drs. Otrich Hansing, Fairbrother, Applewhite, Miller, Lillie, Hagarty, Huggins and M. F. Engman, from St. Louis. DR. CARL A. W. ZIMMERMANN, Secretary.

VERMILION COUNTY

The Vermilion County Medical Society was called to order Oct. 9, 1911, at 8:30 p. m., by President Dr. E. E. Clark. The minutes of preceding meeting were read and approved as read. At this meeting Dr. J. C. Rathbun and Dr. I. E. Burtnette were elected to membership. Dr. Cooley made a motion that the president appoint a commitee of three to draft resolutions relating to the death of Dr. Harvey L. Hensley. Dr. Steely second. Carried. Committee: Cooley, Wilkinson and Steely. Dr. Hensley's death occurred Sept. 19, 1911.

A communication from the Dr. W. A. Cochran family, thanking the society for flowers sent at time of Mrs. W. A. Cochran's funeral, was read. There were no papers to be read at this meeting, it being a clinical meeting. There were three cases exhibited. Dr. Cooley exhibited a heart case which created a great deal of interest.

Dr. Solomon Jones exhibited a case of mitral and aortic regurgitation. Dr. O. H. Crist presented a skin case that created a very lively discussion. As the time was growing late it was decided not to present any other cases, though there were others in waiting.

The president of the Illinois State Medical Society, Dr. W. K. Newcomb, present as the honored guest of the evening, gave a practical lecture. The speaker urged the V. C. M. S. to cooperate with societies and members throughout the state in raising the standard of medical education. He advocated the unit standard of requirements throughout the United States; since if a man is

qualified to practice medicine and surgery in Illinois, there should be no bar preventing him practicing anywhere in the United States if he chooses to do so. He believes in the highest standard of education as an entrance requirement to a medical school.

After the lecture, Miss Northwood, the Hospital Superintendent, announced refreshments, which were thoroughly enjoyed. A vote of thanks was extended to the superintendent and her assistants.

After refreshments the gentlemen who smoke enjoyed the Havanas, kindly donated for the occasion by the Senger Drug Co. Five minutes later the halls were vacated except for eddying and floating smoke from the Havanas.

Members present: Cooley, Clark, Wilkinson, Fisher, Dice, F. N. Cloyd, R. C. Cloyd, S. W. Jones, Solomon Jones, L. V. Fairhall, Clay, Russel, Mason, Crist, Dale, McIntosh, W. K. Newcomb, president of Illinois Medical Society, Geo. T. Cass, guest, Tennery, Hooker, J. M. Guy, Babcock, Clements, Steely and Walton.

SOLOMON JONES, Secretary.

Book Notice

NOSTRUMS AND QUACKERY. Based on articles on the Nostrum Evil and Quackery in *The Journal* of the American Medical Association, with additions and elaborations. Part I, Quackery. Part II, Nostrums. Part III, Miscellaneous. First Edition. Cloth. Price, $1; with individual's name on cover, 25 cents extra. Pp. 509, with 220 illustrations. Chicago: American Medical Association, 535 Dearborn Avenue.

Every physician whose patients ask for information regarding the efficacy of certain "patent medicines," advertising specialists or other quack treatments, and every layman who desires information on the same subjects, will find "Nostrums and Quackery" an invaluable volume. This means that practically all the medical men and a large proportion of the public have use for a book of this kind. In the last few years *The Journal* of the American Medical Association has published a number of articles dealing with the "patent medicine" evil and quackery. The book "Nostrums and Quackery" contains all such articles, elaborated in many cases and embellished with numerous illustrations, while in addition it contains some matter never before published.

The articles in the book do not deal with generalities. They are specific and to the point; they call a spade a spade. The investigations have been made with a thoroughness that leaves the reader in no doubt as to the fraudulence of the quacks' claims or the worthlessness of many "patent medicines." Furthermore, the statements are authoritative, for it is evident that the Association could not afford to speak as plainly as it does if it were not absolutely sure of the facts. In many instances chemical analyses, made in the Association laboratory, are given.

The book consists of three parts, Part I devoted to quackery, Part II to nostrums, and Part III to miscellaneous subjects. These parts are again divided. Under Quackery, for example, we find sections devoted to "Advertising Specialists," "Cancer Cures," "Consumption Cures," "'Female Weakness' Cures," "Medical Institutes," and other concerns of a similar nature. Under Nostrums there are sections devoted to "Asthma Cures," "Cough Medicines," "Hair Dyes," "Laxatives," "Obesity Cures," "Rheumatism Cures," and other typical nostrum groups. In the Miscellaneous section there are discussed such subjects as "The American College of Mechano-Therapy," "Patent Medicine Makers and the Press," "Molding Opinion in Food Preservatives," and others of equal interest and importance. In fact, the book is not only a *vade mecum* on the nostrum evil but a veritable "Who's Who" in quackdom.

"Nostrums and Quackery" is published primarily to enlighten the public regarding fakes and fakers. It is a duty of every physician to see that his patients become familiar with the contents of this book. The Association is prepared to furnish it in quantities at a very low figure; it also supplies a copy intended for use in the reception room, with the physician's name printed thereon.

NEWS OF THE STATE

NEWS

—Dr. Wm. R. Magum of Buncombe, Ill., has recently located in Maryville.

—The doctors of Alton have arranged to give a series of health talks to the students of the Wood River High School.

—Dr. Rice will start on a trip around the world December 1. When he reaches Berlin he will take a course of study on internal medicine.

—By the will of the late Emanuel Frankenthal, Chicago, $2,000 is bequeathed to St. Luke's Hospital, and a similar amount to Michael Reese Hospital.

—Dr. J. Estell Miller, of Pittsfield, Ill., has moved to Quincy, where he will be associated with Dr. J. H. Rice. Dr. Miller will confine his work to surgery and gynecology.

—Dr. W. E. Reid of Marion, Ill., who has been practicing osteopathy for the past eight years, has entered upon his senior year at Barnes Medical College for the study of medicine.

—At the annual meeting of the officers of Proctor Hospital, Peoria, Mr. Oliver J. Bailey was reelected president. A memorial tablet was placed in the hospital in memory of Dr. John Murphy.

—The village council of Oak Park, Ill., has refused permission to build the West Suburban Hospital in that village, on the ground that the management had failed to obtain the necessary consent of the neighbors to the erection of the building.

—The Chicago Tuberculosis Institute announces that no solicitors are employed by them to collect money for the organization. The reason for this announcement is that two men are reported to have been soliciting money for the alleged benefit of that institute.

—Dr. and Mrs. Edmund F. Cleveland, Dundee, have announced that they will furnish the dormitories on the first floor of Sherman Hospital, Elgin, now occupied by the nurses. The dormitories are to be remodeled and divided into six rooms which will be used as wards for women and children. The gift is in memory of their daughter.

—Dr. E. W. Fiegenbaum of Edwardsville, secretary of the Madison County Medical Society, has begun procuring data for a contemplated biography of all physicians who have practiced in Madison County during the last century. There are about 1,000 names, and the work may require several years.

—The Chicago Medical Society plans to give neighborhood health lectures throughout the city during the winter months. Public lectures have been given in the public library in previous years and it is now proposed to extend the scope of these lectures by having talks along health lines made in the various sections of the city and in school houses, if they may be obtained from the board of education.

PERSONAL

Dr. Hervey L. Hensley, Oakwood, is reported to be critically ill.

Dr. William S. Sadler, Chicago, sailed for Europe, September 23.

Dr. and Mrs. Chas. S. Bacon of Chicago have returned from Europe.

Dr. and Mrs. Arthur H. Geiger of Chicago have returned from Europe.

Dr. and Mrs. Alexander H. Stevens of Chicago have returned from Europe.

Dr. John Ridlon, Chicago, has been elected consulting surgeon of the Newport (R. I.) Hospital.

Dr. Charles R. Spicer, Aurora, has been elected chief medical examiner of the Yeomen of America.

Dr. J. N. Thresh, Danvers, who has been ill at St. Francis Hospital, Peoria, has returned convalescent.

Dr. and Mrs. Benjamin Gleason and children of Danville have returned from a six months' trip to Europe.

Physicians of Mattoon gave a dinner September 14 in honor of Dr. Cleaves Bennett, who has moved to Champaign.

REMOVALS

Dr. O. F. Blakely has removed from Urbana to Fairfield, Ill.

Dr. Loran E. Orr has removed from Tallula, Ill., to Petersburg.

Dr. F. H. Deane of Hindsboro, Ill., has removed to Humboldt, Ill.

Dr. R. G. Cottrall of Cedar Rapids, Iowa, has located at Savanna, Ill.

Dr. J. E. Beck has removed from Coal City, Ill., to Arkansas City, Kan.

Dr. A. C. A. Gaul has removed from 5732 Kenmore Ave., Chicago, to Seattle, Wash.

Dr. Harry O. White of 703 Ashland Blvd., Chicago, has removed to Ocean Park, Cal.

Dr. J. D. Hadden of Chicago has removed to 4929 Pasadena Ave., Los Angeles, Cal.

Dr. Frances J. Buss of 5200 Washington Blvd., Austin, Ill., has removed to 140 Rogers Ave., Chicago.

Dr. Curtis Brown of Marion, Ill., has removed to Colorado, where he will take up the practice of medicine.

Dr. D. E. Ricardo has removed from 4624 Vincennes Ave., Chicago, to Cincinnati, O. Virginia Flats, Rockdale Ave.

PUBLIC HEALTH

—Dr. George W. Boot, president of the staff of St. Francis Hospital, Evanston, announces that the hospital has arranged for a free clinic for school children needing attention on account of conditions found by the school inspectors. The clinic will be held each Saturday at 1:30.

—The Springfield Tuberculosis Association held its first clinic between 5 and 6:30 p. m., September 14, at the dispensary, 717 East Washington Street. Evening clinics are held every Thursday to accommodate patients who are unable to attend during working hours.

—The following detailed statement of infant mortality from diarrheal diseases for the months of July, August and September, 1911, compared with the same months of 1910, shows a net reduction of 362 deaths the past summer. Of this decrease, 311 occurred in the wards covered by the Infant Welfare Service. This was a decrease of 21.4 per cent. as compared with a decrease of less than 15.5 per cent. in the better residence wards in which the welfare service was considered less urgent. The above showing is gratifying to the Health Department and to different organizations interested in the work of saving Chicago's infants. The weather in May and June of the past summer was considerably hotter than in the corresponding months of 1910. The welfare workers anticipated greater difficulties this year in keeping down the infant mortality, but were remarkably successful in spite of the early heat. The temperature from July to September was practically the same both summers.

Ward	1911			1910			Reductions, 1911
	Under 1 Year	1 to 2 Years	Total Under 2 Years	Under 1 Year	1 to 2 Years	Total Under 2 Years	
1	9	1	10	12	4	16	6
2	8	0	8	15	2	17	9
3	10	4	14	12	0	12	* 2
4	43	8	51	51	14	65	14 N
5	48	11	59	55	12	67	8 N†
6	3	1	4	8	0	8	4
7	10	0	10	7	1	8	* 2
8	60	14	74	83	30	113	39 N†
9	42	6	48	47	11	58	10 N†
10	38	6	44	49	4	53	9 N†
11	67	17	84	63	9	72	*12 N
12	77	9	86	102	18	120	34 N†
13	15	1	16	8	3	11	* 5
14	31	6	37	34	6	40	3 N†
15	20	3	23	24	6	30	7 N
16	65	18	83	71	22	93	10 N†
17	105	19	124	145	42	187	63 N†
18	16	0	16	15	1	16	0
19	63	7	70	54	10	64	* 6 N†
20	14	3	17	17	1	18	1
21	10	1	11	12	0	12	1
22	38	8	46	53	19	72	26 N†
23	24	1	25	19	3	22	* 3
24	29	4	33	34	7	41	8 N
25	5	3	8	15	0	15	7
26	13	5	18	22	5	27	9
27	21	5	26	54	11	65	39 N
28	35	2	37	39	11	50	13 N
29	108	26	134	133	21	154	20 N†
30	23	4	27	33	4	37	10 N
31	17	2	19	23	4	27	8
32	9	2	11	16	8	24	13
33	43	9	52	52	16	68	16 N†
34	15	2	17	26	4	30	13
35	21	1	22	12	4	16	* 6
Hospitals, no city address	48	2	50	45	3	48	* 2
Totals	1,203	211	1,414	1,460	316	1,776	362

* Increase. † Wards in which the Infant Welfare Service was continued in September. "N" Wards marked N were covered in whole or in part by the Welfare Service in July and August.

—*From Bulletin Chicago Department of Health.*

MARRIAGES

BERT P. COLE, M.D., to Miss Rose Persinger, both of Kenney, Ill., September 8.

JOHN J. KERWIN, M.D., to Miss Helen Marie White, both of Chicago, September 12.

AMZIE S. PLUMMER, M.D., to Miss Bessie I. Pitney, both of Peoria, Ill., September 6.

HARRY LORENZO JAMES, M.D., Springfield, Ill., to Miss Mildred Falk of Chicago, January 14.

RALPH C. HAMILL, M.D., Chicago, to Miss Margaret Hunt of Winnetka, Ill., September 2.

HENRY JAMES REYNOLDS, M.D., Chicago, to Mrs. Caroline W. Reid of Ottawa, Ill., October 4.

GEORGE LUTHER DAVENPORT, M.D., to Miss Eva Beulah Griffith, both of Chicago, September 12.

JOHN ARTHUR TURNER, M.D., Waukegan, Ill., to Miss Hazel Irene Kline of Chicago, October 5.

EDITH GRACE GRANT, M.D., Greenup, Ill., and Fritz William Graff of Marshall, Tex., August 23.

ARTHUR H. R. KRUEGER, M.D., to Miss Grace Wolter, both of Carpentersville, Ill., September 27.

ARTHUR M. BISHOP, M.D., Chicago, to Mrs. Della Robins Burnett of Good Hope, Ill., at Galesburg, August 26.

GUSTAV LEONARD KAUFMANN, M.D., Chicago, to Miss Muriel Gregory of Fredericton, N. B., Canada, September 4.

ARTHUR WILLIAM STILLIANS, M.D., Chicago, to Miss Therese Spitler of Vienna, Austria, in New York City, July 24.

OBITUARY

DR. LEE SMITH, born near Hudson, McLean County, Ill., May 8, 1832; raised on the farm; early education received in subscription school, later attended the Illinois Wesleyan, being a member of the first graduating class. Graduated from Rush Medical in 1856, practiced one year in Hudson, then came to Bloomington, where he practiced up to the time of his death, Oct. 16, 1911.

An honored member of the medical profession in Bloomington for over a half a century, and a member of the McLean County Medical Society for the past fifty-five years, has been promoted to the Great Life Beyond, having departed this life at 4:45 p. m. Monday, Oct. 16, 1911.

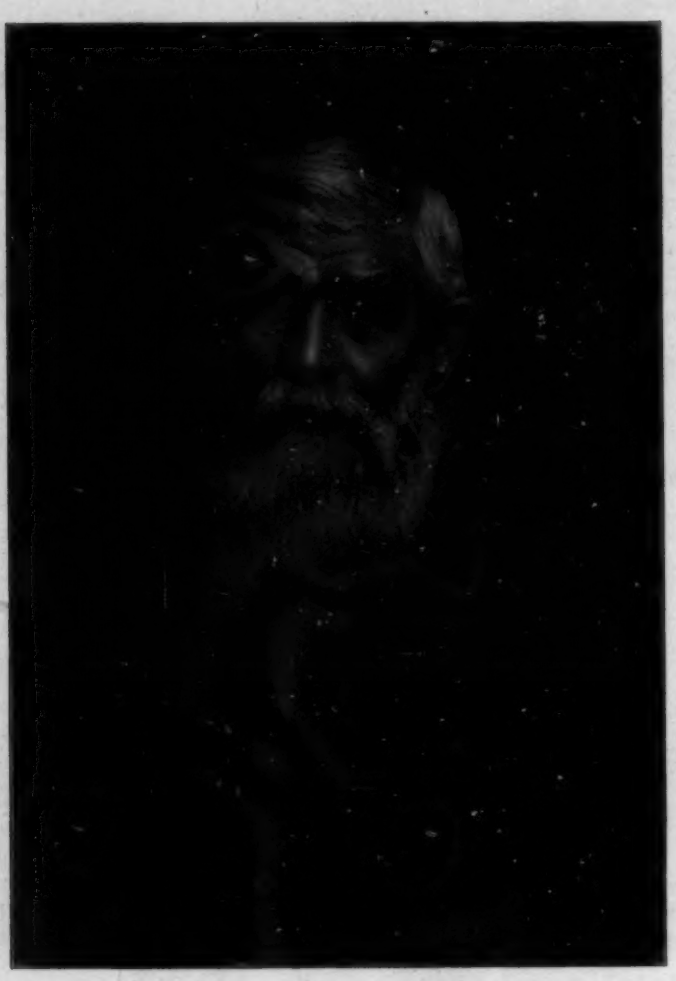
The medical profession of Bloomington mourn the loss of so noble a character, as he always "went about doing good."

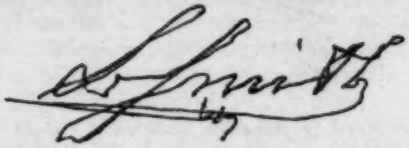
With the passing of Dr. Smith we lose one of the old-time family physicians who never placed professional services on a financial basis but answered every call and entered into the sympathies of the family, weeping with those who weep and rejoicing with those who are glad.

The doctor rounded out this life beautifully. Only Friday before his death he visited a patient, returned home and took to his bed from which

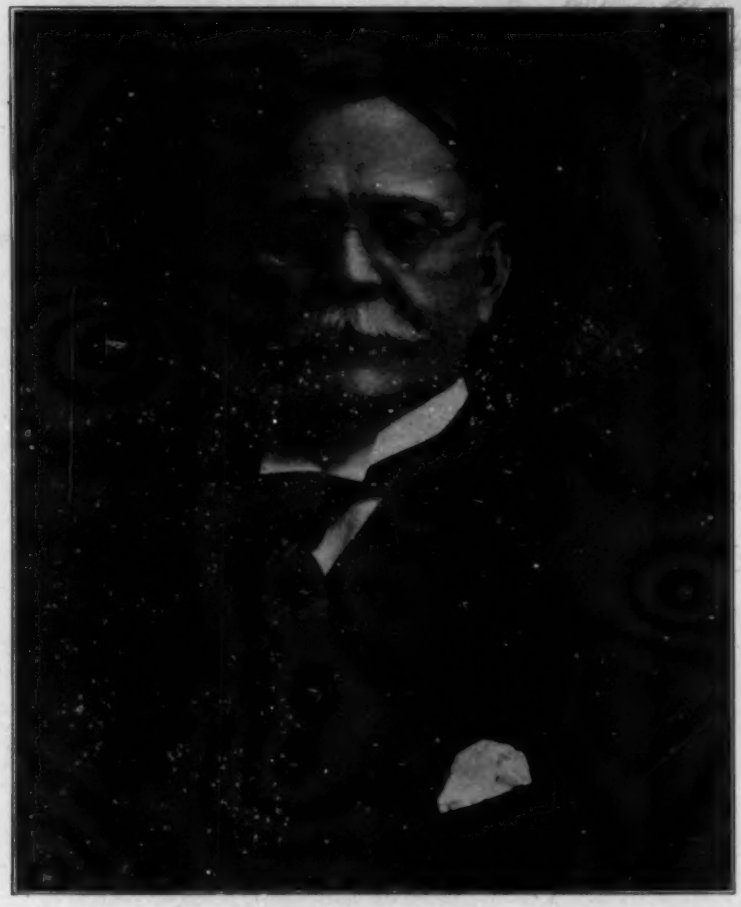
he never arose. Had he lived until next May he would have lived four score years; a long life filled with noble deeds.

McLean County Medical Society,
Thos. D. Cantrell, Secretary.





ALEXANDER HUGH FERGUSON, a prominent surgeon of Chicago, died at his home in that city October 20, from diabetes, aged 58. He was born in Ontario and was an honor graduate of the Medical College of Trinity University in 1881. He began practice in Manitoba in 1882, where he remained until 1894, when he moved to Chicago. He was one of the founders of Manitoba Medical College, Winnepeg; for three years was



professor of physiology and histology in the institution and for eight years thereafter professor of surgery. In 1894 he was made professor of surgery in the Chicago Post-Graduate Medical School and Hospital, and since 1900 had been professor of clinical surgery in the College of Physicians and Surgeons.

His society membership included the American Medical Association (in which he served as first president of the Manitoba branch), Chicago

Medical Society (of which he was president in 1910), Western Surgical and Gynecological Society (of which he was once president), the American Surgical Association and other learned societies. In 1906 Dr. Ferguson was honored by the king of Portugal with the decoration of Commander of the Order of Christ of Portugal. His hospital appointments included those of surgeon to the Winnepeg Hospital, surgeon in chief to St. Boniface Hospital and chief operator at Brandon and Mordon hospitals, Manitoba, and after his removal to Chicago he became surgeon to the Post-Graduate Hospital and Cook County Hospital for the Insane and also was surgeon in chief to the Chicago Hospital.

Dr. Ferguson had suffered from an attack of furunculosis for some weeks before his death, and from a myocarditis and pericarditis, and later thrombo-phlebitis of veins of both legs and general staphylococcus infection. He finally succumbed to uremia and edema of the lungs.

DEATHS

ROBERT GORDON, M.D., McGill University, Montreal, 1868; for thirty-five years a practitioner of Arlington, Ill., died in Seattle, Wash., August 8, aged 69.

HENRY T. WHITING, M.D., Chicago Homeopathic Medical College, 1883; died at his office in Rockford, Ill., September 13, from acute gastritis, aged 73.

HARVEY L. HENSLEY, Physio-Medical College of Indiana, Indianapolis, 1907; died at his home in Oakwood, Ill., September 19, from typhoid fever, aged 37.

ARNOLD CARPENTER DAVIS, M.D., Hahnemann Medical College, Chicago, 1881; died at his home in Farina, Ill., September 15, 1910, from acute enteritis, aged 71.

FRED WILLARD LESTER, M.D., Rush Medical College, 1879; for several years a practitioner of David City, Neb.; died at his home in Aurora, Ill., August 24, aged 57.

JAMES G. W. ENTWISTLE, M.D., Albany (N. Y.) Medical College, 1883; formerly of Chicago; died at his home in Canton, Ill., September 1, from pernicious anemia, aged 69.

ADA BENTON MORGAN, M.D., Hahnemann Medical College of Chicago, 1894; died at her home in Ridge, a suburb of Chicago, September 23, three days after an operation for appendicitis, aged 52.

GUY CLIFFORD POWELL, M.D., Louisville (Ky.) Medical College, 1898; of Peoria; a specialist on diseases of the ear; died in Presbyterian Hospital, Chicago, August 25, from rheumatic endocarditis, aged 42.

WILLIAM S. BROWNE, M.D., Bennett Medical College, Chicago, 1875; formerly of Watseka, Ill.; a member of the Illinois State Medical Society; died at his home in Opolis, Kan., August 21, from cerebral hemorrhage, aged 61.

GEORGE WM. REYNOLDS, M.D., University of Buffalo (N. Y.) 1880; Rush Medical College, 1897; for many years a member of the American Medical Association; chief of the gynecological staff of St. Joseph's Hospital, Chicago; died in that institution, September 9, from chronic interstitial nephritis, aged 57.